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Sixth Edition

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THE RAILWAY GAZETTE
33, TOTHILL STREET, WESTMINSTER, S.W.1.

"Post Office Red" and "Southern Green"

ONLY about a thousand people have responded to the invitation of the Railway Executive to state their preference for the colours of locomotives and carriages to be adopted by British Railways. This poor response confirms the view we expressed at the time the invitation was made. It was a foolish publicity stunt, and in any event the replies would probably cancel each other, and in the end the decision would have to be made by the Executive. We think the Minister should make the decision. Nothing has occurred in the meantime to alter our opinion that "Post Office Red" should be chosen for express passenger locomotives. It is cheerful and has come to signify State ownership. In city and country how smart and cheery the post office motor vans look! Kept clean *our* locomotives might be just as inspiring. What a pleasing combination would be "Post Office Red" for the locomotives and "Southern Green" for the coaching stock, provided the Southern standard of cleanliness became general!

* * * *

An Ineffective Nationalisation Debate

Both the Lords and Commons debated nationalisation on an opposition amendment to the Address in reply to the King's Speech, but, although the speeches were long, they were not particularly effective from either side. In the Commons the amendment was rejected by 359 votes to 195. The attack on nationalisation was launched by Mr. R. S. Hudson and the principal replies for the Government were made by Mr. Hugh Dalton and Mr. Herbert Morrison. The former maintained that, apart from civil aviation, nationalised industries had not cost the taxpayer anything, and Mr. Morrison said that in the organisation of the nationalised industries finality had not been reached and he promised that there would be modifications and improvements. Colonel Lancaster said that a few months after the Coal Board came into operation he remembered the Deputy Chairman commenting: "For the first time we have got a good filing system in this industry." He took up the point, which was made by a number of other members, that the main need was production, which could be brought about only through leadership, which in turn was dependent on decentralisation. Mr. L. D. Gammans said that under nationalisation prices had gone up, quality had gone down, and the benefit of the consumer's choice had been lost.

* * * *

A Bill for Special Motor Roads

In the House of Commons last week the Minister of Transport presented the Special Road Bill, which provides powers for the construction of roads reserved exclusively for particular classes of traffic. The most important type of these will be motorways, which will be restricted in their use to high-speed road vehicles and which may be either trunk, classified, or unclassified roads. If they are trunk roads the cost of construction and maintenance will be met out of the Road Fund; if classified roads, grants will be available from that fund in the ordinary way. The roads will be constructed under schemes made by the Minister of Transport as the highway authority for trunk roads, or by other highway authorities. Schemes made by other highway authorities will have to be confirmed by the Minister. No estimate is given of the total costs that will be involved if the Bill becomes law, but it is stated that it is unlikely that the powers sought will result in any substantial increase in the total expenditure which otherwise would have been incurred by the Minister in respect of roads.

* * * *

Nationalised Steel and Engineering Industries

The Engineering Industry Association, which represents the views of some 3,500 British engineering undertakings, has expressed its concern at the proposed Iron & Steel Nationalisation Bill and has stated its views that the measure will have a disastrous effect on the engineering industry. The Bill will create an atmosphere of uncertainty in which forward planning will be impossible, and that atmosphere will last for more than 18 months, at the very time when the productive efficiency of the engineering industry is most essential to the national well-being. Under the provisions of the Bill many engineering concerns will have to buy their raw materials from State-owned undertakings, and, in effect, their supplies of raw

materials will be controlled by their competitors. If the Bill becomes law, private firms will have to compete against those owned by the Iron & Steel Corporation, and concern is expressed as to whether there may not exist a danger of preferential treatment by the Corporation.

* * * *

Overseas Railway Traffics

Despite an increase of £1,221,250 in working expenses during September, Canadian Pacific traffics showed a betterment in net earnings of £335,250, as compared with 1947, with gross earnings up by £1,556,500. Net earnings for the month were £575,250 and gross earnings £8,499,750, and on the aggregate, although gross earnings at £63,896,750 are £5,664,750 above 1947, net earnings are £1,453,750 and £1,196,750 less than those in the previous year. Further setbacks were suffered by United of Havana in the fortnight ended October 30, when traffics of £42,398 and £41,800 reflected decreases of £25,344 and £20,793 and have brought aggregate traffics down to £326,545 below last year, at £748,716. Antofagasta receipts since January 1, were £2,396,180 at October 31, and showed an advance of £511,232; in the first week under review, receipts at £73,100 were up by £24,108 and in the week ended October 31, were £63,430, or £13,228 more than for the previous year.

* * * *

Decline in Rail Travel

In our October 29 issue a survey of transport statistics for the period to August 8 commented on the decrease of nearly 10 per cent. in railway passenger journeys originating in July. Belatedly, the daily press has noticed the declining trend of rail travel, and *The Manchester Guardian* of November 4 contrasts it with the improvement in British airline carryings. *The Manchester Guardian* states correctly that 59,397,000 passenger miles were flown in July, and then gives the number of passengers as 5,000,000, which would make the average length of flight little more than 10 miles. Actually, the number of passengers was 90,500 and the average flight covered 654 miles. A complicated table of British air operations in the *Monthly Digest of Statistics* has led *The Manchester Guardian* to mistake passenger ton-miles for passengers. Air transport is increasing, but its development is slow and the prospect is that British airlines will go on losing money for a long time.

* * * *

Lifting of Controls

At a press conference on November 4, Mr. G. R. Strauss, Minister of Supply, said that he had approved the release from statutory control, as from December 1, of most of the products coming under Machinery, Plant & Appliances Orders, 1945-46. These affect manufacturers of 75 products, among which are included steam generating plant, foundry plant and furnaces, conveyors and elevators, accumulators, water distillation plant, and industrial trucks, etc. Mr. Strauss said that, though statutory control was to be taken off these products almost at once, this did not mean that the policy which control was designed to serve no longer held good. He was removing the controls with the assurance that the industries concerned would, without the waste of time involved in a licensing system, continue to comply with Government policy as regards the distribution of output between the home and export markets, which was still our main concern. Revocation of these controls will not result in the withdrawal of Government interest in the activities of the industries. Production and export returns still will be required and the existing system of steel allocation is to be maintained.

* * * *

Increasing Industrial Output

The Anglo-American Council on Productivity, which has been studying industrial methods in the United Kingdom since October 25, announced on November 5 that five joint committees would be set up to co-operate in seeking increased output from British factories. These committees will be concerned with: the exchange of production techniques; the maintenance of productive plant and power; the measurement of productivity; the specialised production of components; and economic information. The Council has pointed out that records have shown that industrial output is closely related to the amount of mechanical power available to each worker. In the United States the average worker can command about twice the amount of power as the average British worker. This fact, in the opinion of the Anglo-American Council, accounts in large measure for the greater output per man-hour in many industries in the United States. Mr. Philip D. Reed, Chairman of the U.S. Section of the Council, has said that, in his experience, British personnel work as fast as their American counterparts, and he believed that with the same technical equipment they could produce as much.

* * * *

Railways and Coast Erosion

Although a line along the sea shore may offer the easiest and sometimes the only practicable route for a railway, its subsequent maintenance may be a matter of considerable difficulty and expense. Several instances could be quoted of railways in exposed positions on the coast that have suffered severely during violent storms, or from continued erosion of the foreshore, and have had to be protected by large-scale defence works. In a few extreme cases, a deviation to a less vulnerable line has become necessary. The extensive works now being undertaken at Seasalter, near Whitstable, to protect the London—Ramsgate main line of the Southern Region from progressive erosion of the foreshore, are described in detail elsewhere in this issue. The extension of the railway from Faversham to Whitstable was opened in 1860, and for the past 40 years the section to the west of Whitstable Station has been a source of anxiety. The sea has encroached steadily, and completely undermined the defences constructed in 1913. The new wall is solidly constructed in concrete, backed by rubble filling, and the works include provision for the future drainage of the bank on which the railway is built. A "throwback" coping on the wall and additional groynes are to be provided, if experience shows they are required.

* * * *

A Realistic View on Locomotive Markets

Despite the very heavy volume of work which the British locomotive building industry has on hand it is gratifying that its leaders are not complacent as to the future. There is evidence of this in the journeys overseas which have been and are being made by prominent locomotive builders. In the first issue of *North British News*, the monthly house organ of the North British Locomotive Co. Ltd., a particularly realistic view is taken of increasing competition. It states that there are already signs that the seller's market is dying, and that greater competition must be expected in the future from Germany, America, and Japan. It stresses the need for being able to offer the best locomotive at a cheaper price than the works of competing nations, and expresses concern at recent rises in manufacturing costs. To keep costs down it will be necessary to raise output, and one way of doing this is to modernise machine tools and plant. This the North British Locomotive Company is doing as quickly as present conditions permit. It has also introduced new items into its field of production, such as small diesel locomotives for underground traction in mines, and a range of machine tools.

* * * *

New Tank Locomotives for Egypt

We publish elsewhere in this issue, an illustrated description of a new series of oil-burning 2-4-2 side tank locomotives which have been built recently by W. G. Bagnall Limited at the Castle Engine Works, Stafford. These engines, which are eight in number, are comparatively small machines, the total weight in working order being only 42¼ tons. Built for the 4 ft. 8½ in. gauge, they should be extremely useful on fairly light track with sharp curves, since of the total wheelbase of 22 ft., only 7 ft. 3 in. is rigid. Local economic conditions are reflected in the decision to adopt oil burning, the fuel being carried in a 375-gal. tank behind the cab. Local operating conditions, too, are indicated in the provision of a water lifter for the side tanks. The utmost simplicity has characterised the design; no superheater is provided, but the boiler and firebox are of ample dimensions in proportion to the cylinders. At 85 per cent. of the boiler working pressure (160 lb. per sq. in.), the tractive effort reaches 11,300 lb., sufficient to enable 650-ton trains (exclusive of the engine weight) to be hauled on the level.

Lord Ashfield

THE death of Lord Ashfield on November 4 removed a great figure from our midst. His lot was to take the lead for nearly 40 years in shaping the development of London's passenger transport facilities. We may regard as his best memorial the combined rail and road undertaking, carrying over 350,000,000 passengers every month, which was vested in the British Transport Commission on January 1, and is now managed by the London Transport Executive.

When Albert Stanley, as he then was, came back to this country in 1907 (at the instigation of Sir Edgar Speyer, and on the recommendation of Mr. Charles Yerkes), he had been appointed General Manager of the Metropolitan District Railway which had just been electrified, and it was as a result of his wide experience in America that the appointment was made. But he came with an experience of a different kind, which he started to use almost immediately, and which was to mean, eventually, so much to the travelling public of London.

His early work in London, in the light of more recent events, is apt to be obscured, but it was during the years 1907 to 1930 that his greatest contribution to the transport problem of London was made, with the exception of the years of the first world war, when he undertook a number of Government appointments, becoming in 1916 President of the Board of Trade.

Before his arrival in 1907, Stanley had been General Manager of the Public Service Corporation of New Jersey, and it was here that he convinced himself that a proper system of co-operation and co-ordination was vital to the successful operation of any substantial city transport undertaking. At the same time, it was his constant aim to achieve that co-ordination without destroying the enterprise and imagination of those who operated under him: he was a great believer in such qualities; indeed, his whole life might well be described as a highly successful private enterprise.

The fusion of the various interests, which was carried out through a holding company named the Underground Electric Railways Co. of London Limited, began in 1910, when the Great Northern, Piccadilly & Brompton Railway by a special Act of Parliament was amalgamated with the Baker Street & Waterloo Railway and the Charing Cross, Euston & Hampstead railways, under the control of the Underground Company, with the title of the London Electric Railway Company.

Acquisition of the London General Omnibus Company followed in 1912, a step on which Lord Ashfield always placed the highest importance, and in 1913 there was a fusion of interests with the Central London Railway; control of the City & South London Railway Company and the Metropolitan Electric Tramways, and London United Tramways was also acquired. In all these matters he was the prime mover, and everything was then ready for him to put into operation his exceptional powers of administration, and create the vast organisation necessary for the efficient working of the amalgamations.

The first step was the creation of what was known as the "Common Fund" established again under statute, whereby the revenues of the whole of the railways and the London General Omnibus Company were pooled and the expenses of the various units paid out of that revenue, on certain agreed proportions before any distribution to shareholders or prior security holders was made. Although it was not until the end of the war, when Lord Ashfield returned to the Underground group, that full effect could be given to the new arrangement; this was the real beginning of the amalgamation, which eventually resulted in the establishment of the London Passenger Transport Board in 1933. The joint security provided by the "Common Fund" enabled him to raise the necessary capital to build large extensions to the railway systems, to Morden in the South, to Cockfosters in the North and to Hounslow in the West, to modernise a large number of the older stations and to rebuild, re-equip and modernise the whole of the bus fleets. All these works were carried out through private capital raised by the Underground companies with, in certain cases, help in the nature of a Government guarantee which was, in fact, never called on, and in every case it was Lord Ashfield's great powers of administration and negotiation that made them such a success.

In 1928 a Bill was promoted in Parliament to extend the principle of the "Common Fund" to the tramway companies of London, including the tramways owned by the London County Council, but this Bill was not passed before the second Labour Government came into power in 1929. Then for the first time the initiative was taken by the Government in dealing with the complicated problem of unifying the transport services of the capital and the outlying districts.

When in April, 1907, A. H. Stanley came to London to be General Manager of the Underground Electric Railway Company under Sir George S. Gibb, Managing Director, the Underground was operating the Metropolitan District Railway and the first sections of the Piccadilly and Bakerloo tubes. It was on the point of opening a third tube connecting Charing Cross with Golders Green and Highgate, but was disappointed with its traffic returns. The Bakerloo, in particular, had fallen short of expectations. In an effort to reduce working costs, trains between Baker Street and Waterloo had been slowed down and lighting at stations restricted. The first thing the new General Manager did was to reverse this policy. The trains were run as fast as the motors would drive them and the stations were lit brightly. The public was attracted at once by this display of liveliness and the popularity of the Bakerloo was assured.

Stanley was then a young man in his 33rd year, but the incident was typical of the methods which he adopted throughout his career. He acted largely by intuition, but was careful to let Frank Pick, who was his principal assistant until 1940, test his ideas by factual enquiry and the application of statistics. Stanley liked to keep clear of detail. Pick was often in danger of becoming immersed in it, but had bright notions about a great variety of matters such as the architectural design of stations and advertising. The two men made a forceful combination for dealing with the unending problem of passenger movement in Greater London.

The first world war proved that Stanley had political gifts of a high order. When he was chosen as President of the Board of Trade in 1916, his duties included the chairmanship of the Railway Executive Committee. He was content to leave the brunt of the railway work to the Deputy Chairman, Sir Herbert Walker, but readily intervened to decide important questions. In discharging the duties of his office he showed much the same flair for negotiation as Lloyd George possessed and was distinctly successful in Whitehall—which has been the grave of many reputations. The peerage conferred upon him in 1920 was a fitting reward.

On his return to the Underground group of companies, as Chairman & Managing Director, Lord Ashfield continued to extend their activities. Gradually it became evident that London's transport problems could not be solved piecemeal; a comprehensive plan was necessary to regulate the development of all modes of travel within 30 miles of Charing Cross. This was achieved by the passing of the Transport Act, 1933, which Lord Ashfield convincingly supported in the House of Lords.

Inevitably Lord Ashfield became Chairman of the London Passenger Transport Board and of the Standing Committee, representative of the board and the main-line railways, set up by the Act. His was the guiding hand and the driving force on both of these bodies. In 1935 he scored a diplomatic triumph by persuading the Government to arrange a loan of £35 million to finance suburban electrification on the Great Western and London & North Eastern Railways and a number of tube extensions. Because of the second world war, this programme of works has not yet been completed; but for Lord Ashfield, it might not have been started. The programme was his last great effort to help the people of London to move about more freely on their daily business. What a pity that he did not live to see the whole of the schemes brought to fruition!

The biography, which appears elsewhere in this issue, indicates that Lord Ashfield had wide interests in general business. On principle he cultivated these outside contacts and assuredly he was never in danger of warping his mind by specialising in a circumscribed branch of transport. Like Sir Henry Thornton, who gained his early experience on American electric railways before he became General Manager of the old Great Eastern Railway, Lord Ashfield held the view that he was paid to think, to throw out suggestions and to give decisions on cases submitted to him. By these methods he compressed a great deal of work into a short time, while

keeping his administrative staff busily engaged in preparing reports for his judgment.

In the years to come it will be interesting to see how the progress made in augmenting London's travelling facilities compares with the developments between 1907 and 1947 for which Lord Ashfield was mainly responsible. Future developments will depend on the initiative and enterprise shown by the British Transport Commission and the composite London Transport Executive, acting as its agent. Fortunately these changes in control happened when Lord Ashfield had practically rounded off his life's work. His career was unique and is not likely to be rivalled in the new environment created by nationalisation. Men with his breadth of outlook, tact, and worldly wisdom are rare at any time. Individuality of that type needs space to grow; there may be no room for it in an era of State ownership.

* * * *

Speculation on Milne Report on Eire's Transport

THE report of Sir James Milne, and his recommendations on public transport operation in Eire, are expected to be received by the Irish Government shortly, but it is considered unlikely that the report will be made public immediately. Transport is a thorny subject in Eire, from the political and every other viewpoint, and it is expected that the Government will consider the report fully before releasing it, or any section of it, to the public gaze. But the delay in publishing it, and in drafting legislation based upon it, cannot be very great, as the Minister for Industry & Commerce (Mr. D. Morrissey) has emphasised the urgency of the investigator's task, the Government's deep concern with it, and its anxiety that it should be completed rapidly.

Already there are many indications that the report will become the subject of strong political controversy. Certainly it will not be welcomed by Fianna Fail, Mr. de Valera's party, which was responsible while in office for the establishment of Coras Iompair Eireann, the principal system of rail and road passenger and freight services, and the bitterest bone of transport contention. On November 3, the following comment appeared in the *Irish Press*, Mr. de Valera's daily newspaper, from "a Dail reporter":—

"It is expected that this document (the Milne report) will be confined to the details of railway management and will not deal with the major issues of transport policy even though the real crux of our transport problem is, in fact, a matter of policy—the means by which the railways can be guaranteed the minimum of traffic necessary for economic operation. Sir James does not seem to have attempted to familiarise himself with this aspect of the matter.

"Although his report will probably form the basis of Coalition transport policy, he has not met any director of C.I.E., any director of the Great Northern Railway Company, or others whose opinions on Irish transport matters are entitled to weight and who offered their assistance.

"During his short Irish visit, Sir James made it clear that in not meeting C.I.E. directors he was acting on the advice of the Minister for Industry & Commerce."

The conservative *Irish Times*, which is not directly tied to any political party, gives Sir James Milne credit for having considered the highest aspects of transport policy. Its forecast was headed "Transport System Unlikely To Be Nationalised," and its comments included the following:—

"It is possible that the physical and political problem of the Great Northern Railway may not be fully overcome, and this may impede the complete pooling of transport resources. There is no doubt, however, but that there will be a connecting link (*viz.*, between C.I.E. and the G.N.R. in a 'new transport company embracing all forms of transport') so as to co-ordinate transport, even though the Great Northern exists as a separate entity.

"The British transport experts now investigating the problem are said to favour the complete elimination of competition in transport, and in this they are supported by Irish transport experts and by almost all organisations associated nationally with transport.

"Measures to diminish the activities of private road hauliers, who are considered to be important competitors with the other transport concerns, are more than likely. . . . The introduction of restrictions on firms who use their own form of transport also may be recommended. This may include the limiting to certain distances within which manufacturers and others who use their own transport may operate."

The *Irish Times* concludes by saying that the matter of controlling competition and the important question of granting the higher fares and rates sought by both C.I.E. and G.N.R. many months ago, "is likely to be decided finally by the Government."

The Irish Government, which is prepared either to restrict private operation of transport, or to permit increased transport charges, let alone permit both, must needs be a bold one. It remains to be seen whether the Labour element of the Coalition, which undoubtedly favours public transport being protected—this being the largest and most highly "union-organised" industry in the country—will provide sufficient stiffening for a harassed Minister for Industry & Commerce against the inevitable onslaught from private commercial interests and organised small hauliers, which would occur on the introduction of any really practical protective measure. Ireland's transport crisis, for such it is, is likely to prove a far tougher test for Mr. Costello's Coalition Government, not yet a year in office, than any question of Commonwealth membership.

* * * *

Shorter Trains and More of Them—V

IN our issue dated October 15 we published a correspondent's letter on the subject of "Shorter Trains and More of Them," dealing with the second article of our series on the effect of the scheme if adopted on the old "Great Northern" main line, which advanced—and very fairly—what we expected would be the principal objection to our proposals. "Insufficient allowances between paths (of passenger trains) to allow that elasticity needed to enable freight trains, running out of course, to be got through various junctions and bottle-necks of the East Coast route" was our correspondent's phrase, and the point is so important that it deserves some examination, even before the series of articles on our scheme has been completed. The concluding instalment (on the Scottish Region) however, will have reference to the possibility of alternative routes, north and south of the border, for some of the Anglo-Scottish expresses, which has a bearing on our correspondent's claim.

We suggested departures every hour from Kings Cross "as a basis for criticism," anticipating that some of the mid-morning or afternoon departures might not be needed as regular trains. This applies particularly to the semi-fast departures at five minutes past each hour, though the old "Great Northern" main line at present carries fewer semi-fasts than any main-line route out of London, with the result that the service to the outer suburban area, over a 30 to 60 miles zone from London, is very poor, as we demonstrated in an article on the outer suburban services of the main-line groups, published in our May 21 issue.

We proposed, in article II on August 27, that expresses to the West Riding and to north of York leave Kings Cross at 50 min. past the hour and at the hour—they cannot be grouped more closely, or more economically from the standpoint of line occupation, than that—followed, at a 5 min. interval, by a semi-fast, so that the three trains would run close to each other through the first bottle-neck, leaving a 40 or 45 min. interval for locals and freight before the next batch of expresses, while the stops made by the third (semi-fast) train would open a freight path, close behind the "hour" express departure, through bottle-necks further down the line. The "Great Northern" main line is well adapted for full advantage to be taken of these margins, down trains being able to pass from "slow" to "fast" or *vice versa*, with no interference to up trains, and wartime alterations have simplified the working north of York. It should be noted, too, that the present Eastern Region timetable has only one two-hours gap between express departures (1.30 to 3.30 p.m.), during which a 2.30 p.m. local from Hitchin makes its way to Peterborough, whereas the 2.50, 3 and 3.5 p.m. departures from Kings Cross on our scheme—which we regarded as the most likely of the series to be suspended—are the only obstacles to a "clear" period from 2.5 to 3.50. A 12.20 p.m. service to Newcastle now fills the pre-war gap from 11.30 (a semi-fast) to 1.20, now only 11.30 to 1, and apart from a 70 min. margin in front of the 10 a.m. Flying Scotsman, there are no intervals between expresses of over an hour.

Almost every critic of our scheme has pleaded for faster schedules, and acceleration of all services, of course, is perfectly possible if it can be done without risk to punctuality. "The quicker a job is done, the lower its cost" was the argument used by one of the L.M.S.R. Vice-Presidents, when urging acceleration in the 'thirties on a rather unwilling

operating department, but we believe that a more frequent and a much more punctual train-service, together with the restoration of severed connections (broken, in many cases, through inability of connecting trains to work punctually) should be the first considerations in timetable reconstruction today. No line can be used to its maximum capacity unless all the trains it is booked to carry run to time. Sir Cecil Paget demonstrated some forty years ago to the somewhat sceptical officers of other companies that freight as well as passenger trains could be worked punctually, and some Southern Region statistics of timekeeping, published recently in these columns, have proved that this is true today.

In the five years before 1939, the main-line from Kings Cross to Hitchin was probably as densely occupied as, and carried trains booked at more varying speeds than, any area in Great Britain, including three high-speed services, the fast Cambridge "beer-trains," and a number of 60 m.p.h. ordinary main-line expresses. Even on the Continent the number and variety of trains can be compared only with the traffic on the Berlin-Bitterfeld section of the main-line to Halle and Leipzig, and our correspondent would find a study of its pre-war timetable very illuminating, and tending to intensify his wish for faster running of freight trains at home. But until that comes to pass, we have endeavoured to simplify the problem a little by adopting moderate and uniform speeds for our proposed passenger service, and although a complete overhaul of the freight timetable, of course, is necessary, we are confident that the freight train paths still exist, and that express freight trains could be got through among the express passenger services with less interference than today, provided the passenger service runs to time.

We can hardly believe that a remark of one of our earlier critics, in his letter published on August 13 last, that the notorious unpunctuality of passenger trains on summer Saturdays is an argument against our view that punctuality would be improved by a more frequent regular service, is intended to be taken seriously. The congestion at certain hours during summer week-ends leads to trains being put on the line for which there are really no "paths" at all, in the hope of easing conditions at the termini, and our suggested spread-over of traffic, with fast trains starting earlier in the morning, is calculated to remove much of this trouble. That passengers will spread themselves over a much longer period, if the opportunity for them to do so is properly advertised, has been abundantly proved on Regions experimenting with earlier departures, and we noted with some amusement that an altered Sunday departure of one of the re-timed East Coast Anglo-Scottish expresses had "proved very popular with passengers," and was to be retained when the service became normal.

* * * *

Developments in Steam Generation

THE Presidential Address to the Institution of Mechanical Engineers is generally an event of some importance, for few men can reach that exalted office without having acquired a considerable degree of engineering wisdom; and, by tradition, the Address has become the vehicle by which they generously pass on the benefits of their experience to others.

The reigning President of the "Mechanicals," Captain (E.) William Gregson, M.Sc., in delivering his Address on October 19, gave his hearers many most valuable observations, especially in connection with steam generation, a field in which (as Manager of the Marine Department of Babcock & Wilcox Limited, and Technical Director of Edwin Danks & Co. (Oldbury) Ltd.) he has unrivalled knowledge.

Although largely concerned with the marine engineering aspects, there is much of interest to railway engineers in Captain Gregson's Address. The more efficient use of fuel is today an urgent national necessity, and any efforts to reduce the amount of fuel in generating a given amount of heat or power is to be welcomed.

The law of diminishing returns, however, precludes the blind following after higher and higher steam pressures; for marine work, a final steam temperature of 850° F. and a pressure of 650 lb. per sq. in. are, in Captain Gregson's opinion, near the economic limit for large-power installations. Beyond these figures, the increased auxiliary consumption and the greater care necessary in operation and maintenance make any higher pressures difficult to justify. Improvements are rather to be sought in the reduction of condenser losses, "to reduce the annoying area on the entropy diagram below the base line of work done." At present, all the latent heat, except the portion which is reabsorbed by bled-stream feed heating is thrown away. It might be worth considering whether a process of heat-pumping could be justified here, so that such losses could be reduced at the expense of a certain amount of negative work to operate the heat pump.

A reconsideration of the Still engine might also be worth while in the case of diesel-engine vessels. Captain Gregson envisages a different mechanical arrangement of the Still principle, so as to avoid "some of the inherent weakness of the original Still engine . . . . Maybe we ought to go beyond steam as the motive fluid and perhaps use one of the Freon group of compounds for the secondary circuit, suitably vapourised by up-graded reject heat."

He also mentions an interesting possibility of improving combustion. If chemical engineers could evolve a process for supplying oxygen cheaply, it could be used for combustion purposes instead of air, and would obviate the present need for carrying so much inert nitrogen through our furnaces.

Locomotive engineers have at various times given thought to oil firing, and Captain Gregson's remarks are of general interest and value, despite their marine background. He found, through personal experience, that oil firing, instead of being simplicity itself, was a complex and exact science. His advice is:—

"The successful burning of oil depends on a series of factors: delivery of the oil at the burners at the appropriate pressure, and a temperature depending on its viscosity; spraying it into the furnace in a very finely divided condition to ensure aeration; a design of throat with or without additional mixing devices; and, finally, the positioning of the burner tips to give complete and speedy aeration to the oil particles. These collectively ensure complete combustion within the geometric limits of a small flame-envelope. Combustion must be complete before the atomised oil comes into contact with the boiler heating surface or furnace walls; otherwise trouble arises. With the small furnaces which are essential to marine boiler practice, this is a rule which cannot be broken with impunity.

The somewhat lower grades of fuel oil which we now have to burn—compared with pre-1939 supplies—have brought their own particular problems. One has been salt-water contamination, causing chemical reaction between the silica in the bricks and the salt, with resultant formation of glass, which, having a different coefficient of expansion from the original brick, causes a good deal of spalling. Again, sulphates formed by the inter-action of sulphur, oxygen, and salt, are disposed to accentuate the bonding of deposits on the heating surfaces, calling for more advanced methods of tube-cleaning."

Many of us remember the mysterious Robinson 2-8-0 locomotive on the former Great Central Railway, in which an attempt was made about 1919-20 to use colloidal fuel.* Captain Gregson's comments on a renewed attack on the problem, for marine purposes, within the last ten years, are therefore of interest. A former naval boiler was used for the trials, which took place at a pit near Aberdare. An air preheater was provided. The fuel consisted of coal dust in oil, the proportions varying from 55 per cent. oil and 45 per cent. coal, to a nearly even mixture. Combustion was excellent with a standard type of burner, provided that the weight of oil in the colloidal mixture exceeded 50 per cent., and that a heat release of about 30,000 B.Th.U. per cu. ft. of furnace volume per hour was not exceeded. Beyond this limit, differential combustion took place; a proportion of the carbon particles was not burnt, but appeared at the bottom of the furnace as small cenospheres with centres of carbon covered by a layer of ash which prevented oxygen from completing the combustion. This limited furnace rating was far too low for competitive marine practice, and experiments were started to find how higher ratings could be attained, but the war put an end to the investigation.

It has been possible above to touch only on a few of those points, in a most valuable record of practical experience, which are of interest to railway engineers. A perusal of the entire address would be well worth the while of anyone interested in steam generation and waste heat recovery.

* See *The Railway Gazette*, 1920, vol. 33, pp. 60, 63

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Aberdeen—Penzance Revival?

From Lt.-Colonel Sir Michael Peto, Bt.,
Dundonnell House,
By Garve, Wester Ross,
Scotland. October 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I feel that so far no one in your columns has put the scandalous case, that 3½ years after the end of the war, not one single through train, either by day or night, has been restored by any route between Scotland and the West of England (if one excepts the "R.R." through carriages on Friday evenings of last summer at 5.30 p.m. from Glasgow St. Enoch to Plymouth). Compared with the through services restored all over the world in nearly all countries, this constitutes what must be about a record of "bloody-mindedness!" I can appreciate perfectly well the excuses that will be made, namely, that under post-war conditions, direct traffic to and from London must have the chief consideration, but falling passenger traffics show that they are wrong. The British Railways have *got* to start wooing their potential passengers from all points of the compass, to make up to some extent for the present almost prohibitive cost of travel.

I suggest as a first step the restoration of the through Aberdeen-Penzance service, this time by what I might call the "natural" (West Coast) and Severn Tunnel route. I have tried to keep additional (and uncompensated) mileage to a minimum.

PROPOSED NEW ABERDEEN-PENZANCE EXPRESS (1949)

Through van third and compo

Aberdeen	dep. 9.35 a.m.	Breakfast car
Perth	arr. 11.48 a.m.	(Connections dep. Inverness 8.20 a.m. and Dundee West 11.35 a.m.)
,, ...	dep. 12.11 noon	(Suggest this train should have a breakfast and luncheon car and through coach from Inverness to Carstairs, arr. 2.20 p.m.)
Crewe...	arr. 7.3 p.m.	Tea car from Carstairs
,, ...	dep. 8.15 p.m.	(Connection dep. Liverpool Lime Street 7.5 p.m. Suggest that this train should have compo-sleeping car through to Penzance, and a dining car to Shrewsbury, arr. 9.10 p.m.)
Bristol Temple Meads	arr. 12.46 mdnt.	(Connections to Newport and Cardiff, arr. 12.35 a.m.)
Plymouth North Road	arr. 5.30 a.m.	
Penzance	arr. 8.20 a.m.	

RETURN SERVICE

Penzance	dep. 4.45 p.m.	(Suggest this train should have compo-sleeping car Penzance to Liverpool, and a tea and dining car Penzance to Newton Abbot, arr. 9.10 p.m.)
Plymouth	dep. 8.5 p.m.	
Bristol Temple Meads	dep. 12.0 mdnt.	
Liverpool Lime St. ...	arr. 6.20 a.m.	(Suggest a new early morning express business train from Liverpool Lime Street and Manchester Exchange (dep. 7.35 a.m.) to Glasgow, etc., with breakfast and luncheon car from Liverpool to Glasgow (arr. 1.45 p.m.)
,, ,, ...	dep. 7.40 a.m.	
Wigan (N.W.) ...	arr. 8.15 a.m.	
,, ,, ...	dep. 8.20 a.m.	
Preston	arr. 8.45 a.m.	
,, ...	dep. 8.50 a.m.	
Carlisle	arr. 10.50 a.m.	
,, ...	dep. 11.0 a.m.	

This new mileage would be compensated by combining the two existing morning expresses to Glasgow, which leave Manchester Victoria at 9.30 a.m. and Liverpool Exchange 9.43 a.m. Thus almost the only additional new mileage would be from Carstairs to Stirling, which should have a luncheon, tea, and dining car and through coach to Inverness, and the through Penzance-Aberdeen coaches

Carstairs	arr. 12.45 p.m.	
,, ...	dep. 1.0 p.m.	(Luncheon car)
Stirling	arr. 2.15 p.m.	
,, ...	dep. 2.27 p.m.	Connection to Inverness, arr. 8.1 p.m., and to Dundee West, arr. 4.2 p.m.
Perth	arr. 3.14 p.m.	
,, ...	dep. 3.21 p.m.	Tea car
Aberdeen	arr. 5.41 p.m.	

It will be noticed that the proposed new Liverpool-Penzance sleeping cars balance each other, also the proposed new restaurant car service from Inverness to Carstairs, which actually fills two glaring gaps in restaurant car facilities, each way. With regard to the proposed new restaurant car service from Liverpool to Shrewsbury, this could be conveniently balanced (to considerable public advantage) by a car from Shrewsbury to Manchester, dep. 11.57 a.m., arr. 1.40 p.m., thence dep. Exchange 4.5 p.m., arr. Liverpool Lime Street, 5.5 p.m. Similarly, the Penzance-Newton Abbot restaurant car can easily be balanced, *e.g.*, dep. 9.47 a.m. from Newton Abbot, arriving Penzance at 1.40 p.m. In the absence of any other alternative through facilities from the West of England to Scotland, and *vice versa*, I have little doubt that in a very short while my suggested "van third and compo" would be expanded into a full length train, at any rate south of Carstairs and east of Plymouth.

Yours very truly,
MICHAEL PETO

[Was not the Aberdeen-Penzance through service started in October, 1921, prior to grouping, just a "stunt"? It was the longest through service (785 miles) ever operated on British railways, and eventually whittled down to one through coach from Aberdeen to Penzance and one from Glasgow. Did it ever pay? Are not some of our correspondents too sanguine in hoping that under nationalised transport they will ever get the services that, rightly or wrongly, were provided in the days of company enterprise and competition?—ED., *R.G.*]

Continuous Brakes on Freight Trains

Hove. October 9

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—There seems to have been a good deal of theorising in letters on this subject in your issues of July 16, August 20, September 10, 17, 24, and October 1, 8, and 15. I suggest that some mechanical engineer with extensive operating experience of the combination of continuous brakes with screw couplings should be asked to tell us how straight-haul traffic and hump and other marshalling are affected by it, favourably or adversely. There must be many such engineers in this country who have retired from India, where almost all goods stock is now fitted with continuous brakes. Views based on their experience would be invaluable.

Yours faithfully,
F. S. BOND

Can High-Speed Trains Compete with Air Travel?

Heatly & Gresham, Limited,
14, Great Peter Street,
Westminster, S.W.1. October 29

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—As a London business executive, who on occasions has to visit Glasgow, I should like to bring to your notice the following advantages of air travel, compared with high-speed trains requiring open lines up to three blocks, with its resultant disorganisation of goods and ordinary traffic.

Leave Kensington Air Station	8 a.m.
Arrive Glasgow Airport	11.30 a.m.
Met by agent in car and in office by	11.50 a.m.
Leave St. Enoch Hotel	5.40 p.m.
Arrive Kensington Air Station	9.50 p.m.

From the above it will be seen that the complete trip can be done in a day, giving a 6 hr. business time in Glasgow. The complete journey is done in comfort and the traveller arrives fresh and unfatigued.

Yours truly,
J. L. RIORDAN

Shorter Trains and More of Them

294, Hagley Road,
Birmingham 17. October 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I was greatly heartened by the letters of Mr. J. Muirhead Johnston and "Adam of Usk" in *The Railway Gazette* of October 15. I had begun to wonder if I was the only reader of *The Railway Gazette* who held the view that the prime job of a passenger transport business is to get passengers from one place to another as quickly as possible!

Mr. Johnston's letter interested me particularly because in a tentative way I myself had drawn up some possible schedules for the East Coast main line, and these resembled Mr. Johnston's more careful and elaborate work in certain respects. In one important item we agree closely, namely, in making "The Flying Scotsman" a high-speed service. My train reached Newcastle in 3¾ hr. non-stop, Edinburgh in 5¼, and Aberdeen in the round 8½. With a 10-coach train of special lightweight stock (taring not more than 300 tons) such a schedule is well within the capabilities of the modern locomotive, and will be still more within the power of the locomotives, whether steam or diesel, likely to appear in the near future.

May I urge once again the importance of setting the highest possible standard in speed as in everything else when planning the new timetables? The schedules, once laid down, are likely to persist for a long time. It would be disastrous if all this

planning were to result in a static mediocrity such as followed the famous (or infamous) 50-year Anglo-Scottish agreement. Sir Cyril Hurcomb has stated publicly that the railways are not holding their passenger traffics. A sure way to assist the decline would be a large-scale timetable revision which resulted in "Shorter Trains and Too Many of Them—and None of them Good Enough."

Yours faithfully,
W. G. POLACK

Articulated Locomotives

Victoria, B.C.,
Canada. October 24

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—An English friend, knowing of my interest in articulated locomotives, has sent me a copy of your August 6 issue, which contains a letter, "The Paget Locomotive and After," by Mr. E. W. Herrington. Though it is very late in the day I am tempted to ask Mr. Herrington to submit to you for publication an outline drawing of his suggested locomotive, as without this it is difficult for the reader to picture what he has in mind clearly enough to make comment of any value.

As far as I can gather, it really boils down to what was once known as a "steam tender" engine, and this, of course, is far from original. The first design I recall at the moment was by Sturrock of the Great Northern in the middle of the last century. Coming to more modern times the principle has been applied even to the Mallet in the States in the Triplex design with six cylinders, and many more orthodox engines with four- and six-coupled booster tenders. But none of these examples set the Thames on fire; I wish Mr. Herrington's better fortune.

Goodness knows how many designs of articulated locomotives have been brought out with high hopes that have been disappointed; practice has proved too stern a taskmaster for theory. Two designs have, however, been undoubtedly successful, the Beyer-Garratt and the Mallet. The former has shown its entire suitability for every kind of work, including express, and for this reason may claim with justice to be the most successful existing type of articulated engine. The Mallet has never shown itself adapted to fast travel, and no other articulated engine has even attempted to do so. It must be remembered that much of the Beyer-Garratt's success is due to the lengthy experience of the makers in this field, the system having been fitted to almost every conceivable wheel formation and used under the most widely varying conditions.

It is easy enough to evolve new types of locomotive in the expectation that they will be improvements on existing patterns, but experience has a habit of showing this optimism often to be unwarranted, and success generally comes only when the innumerable details that go to make up any and every type of locomotive have been tested and, where necessary, discarded until only the co-ordinated synthesis remains. This is where the Beyer-Garratt scores, and hence my confidence in its future not only in far-off fields, but very likely in Britain too. I am sure it has scope there, and I hope to live long enough to see this really recognised.

Certainly I think it more suited to British conditions than the complicated, costly diesel-electric using non-home-produced fuel, when the steam locomotive powered from our unlimited national fuel supplies can and ought to be utilised. I think the time has come when designers should give a little more attention to other than "basic designs," which it seems to me have reached the limit of their possibilities. Let us be a little more futuristic! Mr. Bulleid is evidently of this opinion too, more power to his elbow. I love the "basic design" locomotive, but I think its race is nearly run. The future is to other types—turbo-electric, gas-turbine, enclosed-high-speed-gear-driven, articulated multi-cylinder, and so on—their names are legion.

However, meantime let us look at Mr. Herrington's design. It may have possibilities too!

Yours truly,
EDWARD H. LIVESAY

Swindon Locomotive Testing Plant

The Railway Executive, Western Region,
Chief Mechanical Engineer's Department,
Swindon, Wilts. November 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In the article entitled "Opening of the Locomotive Testing Station at Rugby" on page 484 of your October 29 issue, there is a reference to the Swindon Testing Station, in which it is stated that the maximum power absorption is 500 h.p. The statement is unfortunate, as it is very far removed from the present position, although I believe that a similar figure was given in a G.W.R. publication of many years ago.

When the plant was originally built, the main power absorption was taken by a large air compressor with the object of performing useful work in the supply of compressed air into factory mains. This necessitated a complicated arrangement of belting, which, in effect, coupled the rollers. The hydraulically-operated brakes were in the early design a secondary matter, but in 1935 a minor modification was made to the braking system, and the air compressor removed.

Since then the plant has been capable of absorbing the maximum effort of any locomotive tested, and a short time ago a "King" class locomotive was recorded as exerting 2,100 i.h.p. on the plant.

The limiting factor of the Swindon plant, which will apply equally to the Rugby Station, is the frictional adhesion between the locomotive driving wheels and the rollers of the plant when the locomotive is being run under high tractive effort, low speed, conditions. The number of pairs of rollers provided does not alter these circumstances, provided that these are sufficient to accommodate the coupled wheels of the locomotive.

I should greatly appreciate it if you could arrange some reference to this to be made in an early issue.

Yours faithfully,
F. W. HAWKSWORTH
Chief Mechanical Engineer

Publications Received

Gas Turbines and their Problems. By Hayne Constant. London: Todd Publishing Group Limited, 49, Park Lane, W.1. 7½ in. × 5 in. 158 pp. Illustrated. Price 7s. 6d.—The author, who has recently been appointed Director of the National Gas Turbine Establishment, has been closely associated with the development of aircraft gas turbines since work was commenced in this country in 1936. He is therefore in a position to speak with great authority on the subject. The book gives an outline of the history of the gas turbine with special reference to the wartime development in Great Britain, reviews the problems of design and construction of the principal components of a gas turbine plant, *e.g.*, the compressor, turbine, combustion system, and heat exchanger, and concludes with some notes on the applications of the gas turbine. As far as it goes, the account is admirable. However, it is extremely brief and one cannot but regret that the author has not taken this opportunity of writing a more comprehensive work.

The author discusses the prospects of the gas-turbine locomotive and states that there should be little difficulty in obtaining a thermal efficiency of about 27 per cent. This figure implies a fairly high turbine inlet temperature and it remains to be seen whether a plant can be constructed to operate with sufficient reliability under these conditions and with a long enough life for locomotive purposes.

In this respect one feels that there is still a wide gulf between the light-engineering outlook of the aircraft turbine designer and the heavy-engineering outlook associated with locomotive and marine work. If the gas-turbine locomotive is to establish itself in railway traction it will have to rival the diesel locomotive in availability; a comparison between the gas turbine and other forms of traction on fuel cost alone is most misleading.

In spite of these criticisms, the book should be of great interest to engineers who are not already familiar with the development of the gas turbine. It is no more than an introduction to the subject, but it can be recommended as the most authoritative work yet published covering this field.

Prevention of Iron and Steel Corrosion: Processes and Published Specifications. By C. Dinsdale, M.Sc., F.I.M. Published by the Louis Cassier Co. Ltd. 67 pp. 8½ in. × 5½ in., cloth bound. Price 5s., postage 3d.—This book is, in the main, an index of the large number of methods and processes by which prevention is achieved, and it includes the standard specifications connected with them. It is divided into three main parts: (1) Methods of preventing corrosion; (2) cleaning metal parts; (3) codes of practice. Part (1) is subdivided into 11 sections: metallic coatings; oxide, chromate and phosphate coatings; oil paints, enamels, lacquers, tars, and bitumens; plastic coatings; vitreous enamelled coatings; organic preventives; concrete, cement, rubber, and asbestos coatings; paper wrappings; dehydration methods; electrolytic methods; water treatment. There are also two appendices, one giving a list of authorities issuing specifications, and the other paint and paint-component specifications. This work should be of considerable value to those who are responsible for the maintenance of plant and materials.

The Scrap Heap

Porter Tips Passenger

Near London, I offered a shilling to a railway porter for a small but valuable service.

He said: *"No thank you, sir. We are not supposed to accept tips now. Buy yourself a drink."—R. P. Jaques, in a letter to the "Sunday Express."*

* * *

Benefits of Nationalisation

Why do not Labour Members devote the whole of an hour's speech on a public platform trying to persuade the people how much they have benefited already under nationalisation? All the public knows is that prices have gone up, quality has gone down, and they have lost the benefit of the consumer's choice. The only beneficiaries that I can see under nationalisation are sacked Cabinet Ministers and retired trade union officials. Every time a man buys a packet of cigarettes he pays an extra 3d. to make up for losses last year on the National Coal Board and also on civil aviation. That is a high price to pay for teaching Hon. Gentlemen opposite the facts of life.—*Mr. L. D. Gammans in the House of Commons.*

* * *

100 YEARS AGO

From The Railway Times, *Nov.* 11, 1848

CHESTER and HOLYHEAD RAILWAY.—OPENED THROUGHOUT to HOLYHEAD. LONDON to DUBLIN in THIRTEEN HOURS.

DOWN TRAINS.

	London.	Chester.	Holyhead.	Kingstown.
	H. M.	H. M.	H. M.	H. M.
Express..	9 0 a. m.	2 55 p. m.	5 45 p. m.	10 30 p. m.
Mail	8 45 p. m.	3 45 a. m.	6 45 a. m.	10 30 a. m.

UP TRAINS.

	Kingstown.	Holyhead.	Chester.	London.
Express.	8 30 a. m.	2 0 p. m.	5 0 p. m.	10 30 p. m.
Mail	11 30 a. m.	6 20 p. m.	9 25 p. m.	4 45 a. m.

The Company's Steamers run in conjunction with the Express Trains, and the Admiralty's Vessels with the Mail Trains.

Only the Admiralty Packets and Mail Trains run on Sundays.

By order,
ANDREW G GIFFORD, Secretary

The policy of British Railways should be safety first, comfort second, and speed last.—*Mr. J. Benstead.*

* * *

Manx Cat Brings Railway Artist Good Luck

A Manx cat sitting on the bough of a tree was the subject chosen by Mr. Eric Livesey for a photograph which has just won him the premier award in the first annual photographic competition organised by the Staff Association of the Western Region of British Railways. Mr. Livesey is Chief Clerk in the District Goods Manager's Office at Shrewsbury. Besides winning the first prize in its particular section his entry was judged best in the entire competition.

* * *

Fewer Business Trips?

The Government may reasonably hope that a good deal of active hostility will disappear with the removal of controls announced by Mr. Wilson and Mr. Strauss. Business men, particularly small business men on whom personally the brunt of filling in many forms for unimportant quantities fell, were eloquent in such public places as hotels and trains about their grievances and the Government responsible for them . . . The relaxation will make business trips to London less necessary and ease the pressure on hotels, restaurants, and taxis, and relieve Whitehall of many callers who came from all over the country to argue personally cases which had failed when made on paper.—*From "The Manchester Guardian."*

* * *

Trade Union Funds

The wealthiest trade unions are those connected with the transport and general labour and engineering industries, according to a statistical summary of registered trade unions compiled by the Registrar of Friendly Societies (Stationery Office, 3d.).

The summary, which covers the years 1937-47, shows that at the end of last year the total funds of 417 registered trade unions were £50,081,000, compared with a total of £18,105,000 for 433 unions 10 years ago. Last year the funds of 62 engineering unions amounted to £16,313,000, and the funds of 30 unions connected with transport and general labour totalled £14,862,000. Thus, the 92 unions of these two groups had substantially more than half of the total funds; they had also more than half the total union membership included in the return. Mining and quarrying unions, of which there were 74, came next, with funds of £4,818,000. Eight unions representing the professions had funds totalling £28,000.

* * *

Times Change

Before the present regulations on international travel, there was many a business man who took his secretary abroad with him and said she was his wife. Now he takes his wife with him and says she is his secretary.

* * *

Coach and Rail Fares

The following table gives a list of passenger fares by motorcoach and the comparative first and third class monthly return railway fares:—

London to	Road	3rd class rail	1st class rail
	s. d.	s. d.	s. d.
Aberdare	28 6	46 4	69 6
Aldershot	7 6	9 10	14 9
Barnsley	26 9	47 2	70 9
Bexhill	12 9	17 5	26 2
Birkenhead	29 3	53 0	79 6
Birmingham	19 3	30 6	45 9
Blackburn	29 3	57 0	85 6
Blackpool	29 3	61 10	92 9
Bognor	12 3	18 4	27 6
Bournemouth	17 6	29 4	44 0
Bradford	29 9	52 5	78 8
Brighton	10 0	14 3	21 5
Bristol...	17 6	32 7	48 11
Cambridge	10 0	15 11	23 11
Canterbury	10 0	17 1	25 8
Cardiff	26 0	41 10	62 9
Cheltenham	16 3	31 5	47 2
Chepstow	21 9	37 10	56 9
Chester	28 0	48 10	73 3
Coventry	17 6	25 7	38 5
Darlington	35 0	63 5	95 2
Deal	12 3	23 3	34 11
Doncaster	26 9	42 4	63 6
Dover	11 9	22 0	33 0
Durham	36 9	69 3	103 11
Eastbourne	11 0	17 5	26 2
Edinburgh	50 0	107 6	161 3
Exeter...	26 9	46 9	70 2
Farnham	8 3	10 7	15 11
Fleetwood	30 3	62 8	94 0
Folkestone	11 9	19 11	29 11
Glasgow	50 0	109 0	163 6
Gloucester	17 9	31 5	47 2
Gosport	12 9	21 2	31 9
Halstead	8 3	15 11	23 11
Harrogate	30 3	54 1	81 2
Hastings	11 9	17 5	26 2
Hereford	23 0	39 6	59 3
Huddersfield	29 3	49 7	74 5
Hull	33 9	48 1	72 2
Ilfracombe	37 3	54 11	82 5
Ipswich	10 0	19 1	28 8
Leeds	29 3	50 6	75 9
Leicester	16 6	26 10	40 3
Liverpool	29 3	53 9	80 8
Maidstone	5 9	11 4	17 0
Manchester	29 3	50 0	75 0
Margate	11 9	20 5	30 8
Merthyr	27 9	46 4	69 6
Middlesbrough ...	35 6	65 1	97 8
Newcastle-on-Tyne ...	38 0	74 0	111 0
Newport (Mon.) ...	24 3	38 7	57 11
Northampton	11 3	17 11	26 11
Norwich	17 6	31 9	47 8
Nottingham	20 0	33 9	50 8
Oxford	10 0	17 5	26 2
Plymouth	35 0	61 6	92 3
Portsmouth	12 3	20 5	30 8
Preston	29 3	57 0	85 6
Ramsgate	11 9	21 2	31 9
Reading	5 9	9 10	14 9
Rye	12 9	20 5	30 8
Salisbury	11 9	22 9	34 2
Sheerness	7 6	12 8	19 0
Southampton ...	11 9	21 7	32 5
Sunderland	37 3	71 7	107 5
Swansea	32 6	54 1	81 2
Taunton	26 3	39 0	58 6
Tenterden	8 9	15 1	22 8
Torquay	32 0	53 9	80 8
Treherbert	30 9	46 4	69 6
West Hartlepool ...	36 3	67 7	101 5
Wokingham	5 9	9 10	14 9
Worcester	19 0	31 5	47 2

Toll Gate at Kennington

Kennington Toll Gate, reproduced from a scarce photograph taken in 1865, just before the toll was abolished

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Trainee Chefs

It has been decided to introduce a scheme for the training of youths for positions as chefs on the South African Railways. Applications from members of the staff who wish to undergo this training have been called for. Candidates must be not less than 16 or more than 21 years of age, and will be required to serve a probationary period of three months and, if they prove suitable, enter into an agreement, undertaking to serve a training period of five years in the position of trainee chef.

EAST AFRICA

Naming of New Nile Vessel

An interesting ceremony took place recently at Butiaba, Uganda, when Lady Robins, wife of the Commissioner for Transport, East Africa High Commission, named a new ship, the *Lugard II*, which is to be put into commission on the River Nile between Pakwach and Nimule, part of the East African transport system. Distinguished guests from official and unofficial circles in Uganda were present at the ceremony. After the ceremony Sir Reginald Robins, Commissioner for Transport, proposed the toast of the *Lugard II*.

In his speech the Commissioner expressed his pleasure and thanks to the guests who had come a long distance to that outpost, but very important section, of the great transport service of East Africa. He said that the Governor and Lady Hall deeply regretted their inability to be present.

The Commissioner expressed great appreciation of the work of the Chief Engineer and those of all races associated with him in the building of the ship, and said that the ship bore an historic name, and would ply over an historic route. The name of Lugard would be associated ever with Uganda and British Colonial Administration. It was Lugard's efforts, which, however much criticism had been made since, had brought peace and prosperity to Uganda.

After the naming ceremony the guests were entertained to luncheon on the ship and taken for a short cruise on Lake Albert.

The ship, which was built by Fleming & Ferguson Limited, Paisley, and sent in parts to Butiaba, is an independent side-paddle steamer of 380 tons displacement, and 179 ft. 6 in. in length, with a draft of 3 ft. There are two triple-expansion engines, developing 350 h.p., and steam is supplied by an oil-fired Babcock & Wilcox water-tube boiler. Accommodation is provided for 28 first class passengers in two-berth cabins and 20 second class passengers. All accommodation is fitted with punkah louvre forced ventilation.

Batiaba, which is fully equipped for the erection and maintenance of the ships on Lake Albert and the Uganda section of the River Nile, and has a modern floating dock, is on the eastern shores of Lake Albert, which leads into the Nile. Between the north end of the lake and Nimule on the Sudan border, the Nile can be navigated only by shallow draft craft. The route is an important north and south link between Central and North Africa.

BURMA

Damaged Bridges

During August there were widespread activities by insurgents which resulted in damage to track, bridges, buildings, and station equipment. More than 10 bridges on the main line were damaged. The Gokteik Viaduct slide is almost ready for container traffic, except for erection of a gantry and minor adjustments to track. The design and drawings of the Daga Bridge have been prepared and issued, and tenders have been called for substructure work. Girders have been removed from the old Sittang bridge and are ready for shipment to Daga by waterway. Other preliminary arrangements have also been put in hand, but owing to disturbed conditions progress is considerably retarded.

Curtailed Services

Because of unsettled conditions prevailing in parts of the country, normal train services had to be curtailed in August to meet the various situations which arose suddenly as a result of insurgent activities. Between Rangoon and Prome and Rangoon and Pegu no passenger or goods services were run after August 10 and 17 respectively.

Services on the Tharrawaw and the Sittang branches were suspended from August 12 and 15 respectively. In the Henzada district all services were cancelled. As a result of requests received from the travelling public the timings of certain Rangoon suburban locals were revised from July 26 and extra coaches were attached to ease congestion. A second class coach which was provided on all locals from August 10 is proving popular.

Goods Traffic Bookings Suspended

Because of the disturbed conditions, goods bookings from and to Rangoon have been suspended, affecting the shipment of the surplus potato crop to India and log traffic.

CANADA

Smoke Abatement Demonstration

Members of the City of Montreal Smoke Abatement Committee recently viewed a demonstration at the Canadian Pacific Railway Outremont yards of an air jet apparatus which cuts out the bulk of the black smoke from the chimneys of locomotives as they fire up. It is the firing up of locomotives which is held to be one of the principal causes of the smoke nuisance which afflicts parts of the city. The Canadian National Railways officials are planning to try out the air jet apparatus at the Turcot yards.

UNITED STATES

Columbia River Dam Affects Railways

One of the biggest undertakings in hand in the Northwestern States is a great dam, 8,725 ft. long, over the Columbia River at Mc Nary, where the river forms the boundary between the States of Oregon and Washington. The estimated cost of the project is £56,750,000, and it includes the construction of the highest lift lock in the world; its dimensions are 675 ft. by 86 ft. and it has a single lift of 92 ft.

Some of the major ancillary works involve the realignment of 90 miles of main railway lines owned by the Union Pacific Railroad; the Spokane, Portland & Seattle Railway; and the Northern Pacific Railway. The first runs along the Oregon bank of the river and crosses the reservoir, the second follows the Washington bank of the reservoir, and the third crosses the Columbia River near Pasco above the dam in the course of these realignments.

(Left): Lady Robins performing the naming ceremony at Batiaba, Uganda, of the new Nile vessel "Lugard II." (Right): The "Lugard II" on a trial trip on Lake Albert

They also necessitate the raising of three truss-span bridges, each of which has a swing span. On the Yakima branch of the Union Pacific a 3,000-ft. bridge has to be raised 11 ft., and the other two bridges are 2,600 ft. and 1,800 ft. long, and have to be lifted by 5 ft. and 3ft. respectively.

ARGENTINA

Railways Kiosk at Palermo Livestock Show

As in previous years, the railways provided a joint kiosk at the recent International Livestock Show, for the purpose of providing exhibitors and the general public with a complete information service regarding train services, passenger and livestock rates, facilities, wagon supply, rainfall, and so on. Employees from each of the railways were in continuous attendance, and many inquiries were dealt with during the period of the show.

FRANCE

Paris—Lyons Electrification

The work of electrification of the Paris—Lyons main line is progressing so rapidly that completion of the Laroche—Migennes—Dijon section (98¼ miles) is envisaged for December, 1949. The Paris—Lyons—Laroche—Migennes section (97 miles) is to be completed in December, 1950, and the 122¼ mile Dijon—Lyons section in December, 1951. In making this announcement recently, M. Vaubourdolles, who is in charge of the Paris—Lyons electrification, added the proviso that the scheme will be adhered to only if the necessary credits are forthcoming in time.

Of 117 structures where the tracks have to be lowered to provide the clearance required by the overhead equipment, 105 have been dealt with. For the same reason the height of 43 structures has been increased, and similar alterations have yet to be made to 18 more. Ten of 24 bridges already have been rebuilt, and 71 of 114 bridges requiring modification have been altered. Eighteen tunnels have been waterproofed, and in two more the work is in hand. The layout of 36 stations has been rearranged, and 62 more are to be altered. Of 87 station buildings to be modified or reconstructed 60 have been dealt with so far.

Thirteen of the 52 substations along the line have been completed, in addition to 10 parallel switching boxes. Twenty-four more boxes are in hand. For the suspension of the overhead system 30,000 metal standards are to be erected between Paris and Lyons. Their cast concrete foundations will require 235,000 cu. metres of concrete, of which 142,000 cu. metres are already *in situ*. The conversion will absorb 130,000 *tonnes* of steel and 6,200 miles of contact wire.

Special methods had to be adopted for casting the concrete foundations and for erecting the standards, as the dense traffic between Paris and Lyons allows only 90 min. in the 24 hours for this work. Casting is done by means of ten concreting trains comprising the whole equipment and material for the preparation and the actual pouring of the concrete into the holes. Thanks to the adoption of special cranes not more than 3 min. is required for the erection of a standard. The work of replacing the telephone wires along the line by a telephone cable sunk between the tracks has already been completed between Paris and Lyons.

As with electric traction, trains will be longer—their weight will exceed by 20 to 25 per cent. the average of the hauled weight of the steam-worked trains—one of the principal modifications in the stations is the lengthening of platforms. The average speed of fast trains is envisaged at 87 m.p.h., and the track has had to be strengthened and modified accordingly. The outer rail on seven curves required to be superelevated to allow the higher speed. In all, 4,000 workers are engaged in the conversion between Paris and Lyons.

AUSTRIA

Russian Railway Claims

Particulars published in our October 1 issue in respect of Austrian railway property claimed by the Soviet Union emphasised the controversial views held in this matter by the two interested parties. The position has been aggravated in the meantime by a note delivered by the Soviet Union to the Austrian Government claiming the whole of the Austrian locomotive and goods rolling stock now available in the Russian-occupied zone—540 locomotives and 5,775 goods wagons. The reason given for this demand is that the items concerned are considered to be war booty.

The above totals represent about 30 per cent. of the whole of the motive power and goods rolling stock of the Austrian Federal Railways. In respect of the Russian point of view that all German property in Austria produced in or imported into Austria after 1938 should be taken to Russia as reparations (as provided for in the Potsdam agreement), the Austrians have explained officially that the locomotives and wagons concerned were originally Austrian property, incorporated into the Reichsbahn against the will of the Austrian Government after Austria had been overrun by Germany. Those locomotives and wagons could, therefore, not constitute German property.

A year ago, the Soviet Government proposed to sell those locomotives and wagons to the Austrian Government, but the proposal fell through because the price was found to be excessive. The present Russian claims are a serious threat to transport in Austria, and it has been stated that the Austrian Government intends to take the matter before the Allied Council.

GERMANY

Main Line Doubled Again

The French occupation authorities are stated to have agreed to the restoration of the second track on the Offenburg-Freiburg line, which forms part of the former "Rheingold" route between Western Germany and Basle. The line was singled for strategic reasons after the occupation.

The Reichsbahn and Local Railways

Local and light railways in the British-American and French zones will reduce their passenger fares, inclusive of season ticket rates, to the level adopted by the Reichsbahn when the currency was reformed. This measure has been interpreted as a first step towards the gradual absorption of privately-owned railways into the Reichsbahn, a policy of which the Reichsbahn has been stated to be much in favour. One of the systems said to be envisaged in the first instance is the Cologne-Bonn Railways, the standard-gauge electrified main line which connects Cologne with Bonn by a line west of the Reichsbahn main line. In addition, the company owns and operates short steam-worked standard-gauge lines. The system is important in that it contributes to the development of the brown-coal mining regions west and south-west of Cologne. Brown coal conveyed over the railway now averages 12,000 *tonnes* a day.

Improved Services in French Zone

A further step in the improvement of train services in southern Germany was the introduction, on October 3, when the winter timetable became operative, of two daily semi-fast trains each way between Basle (the former Reichsbahn station) and Constance (89 miles). From Basle the line leads along the German bank of the Rhine *via* Säckingen, Waldshut, and Singen, except for about 17 miles between Erzingen and Thayngen to the west and east respectively of Schaffhausen, where Swiss territory is crossed, although this section also is owned and worked by the south-west German railways. The administrative arrangement for the Swiss section was described in our issue of June 4 last.

DENMARK

Private Railway Closed

On October 1 the private Kolding Sydbaner closed. Financial difficulties had been increasing, and the local communities, which hitherto had helped to make up the working deficit, declined to lend further support, with the result that complete closure was decided on. The system consisted of two local lines about 36 miles in all, radiating from Kolding, on the Fredericia-Esbjerg main line of the State Railways. The services have been replaced by five bus routes, for which the State Railways received the concession on September 30, and buses were rushed to the locality during the night to begin working the next morning.

State Railways Rolling Stock Orders

The State Railways have at present on order from Scandia, of Randers, 600 goods wagons, 12 steel postal and luggage vans, 64 passenger coach bodies (to be mounted on older, serviceable bogies), 26 steel passenger coaches, of which six will have special compartments for mothers with small children, and, for the electrification of the Copenhagen-Ballerup line, 16 electric motor coaches and 16 trailers with driver's compartment. Frichs, of Aarhus, has received orders from the State Railways for the delivery of 15 steam shunting locomotives and six 4-6-2 express passenger locomotives of the "E" class, and four 1,000-h.p. diesel sets, each consisting of one motorcar and a trailer. The original locomotives of the "E" class were bought in 1937 from the Swedish State Railways, where electrification had made them redundant, and further machines of the type were built subsequently by Frichs.

U.S.S.R.

Electrification in the Caucasus

The work of conversion to electric traction was begun recently on the 68-mile section between Sanain and Leninakan of the trans-Caucasian main line from Tbilisi (Tiflis) to the Turkish border. This section is the highest stretch of the whole line and cuts through the Dzhadzhurski Pass. At Leninakan, the line connects with the Turkish railway system, as well as with the main line skirting the Turkish and Persian frontiers before joining the Tbilisi—Baku main line at Alyat. The lines are shown on the map published in our December 10, 1943, issue.

Railway Protection at Whitstable, Southern Region

Extensive foreshore works to arrest progressive coast erosion

ABOUT a mile west of Whitstable Station, the main line from London to Ramsgate runs for a distance of ¼ mile within 100 ft. of the sea, and at a height of from 20 ft. to 30 ft. above it. The railway is constructed on a sloping clay formation, subject to slip action, and the boundary of the railway property follows the line of the foreshore for this length.

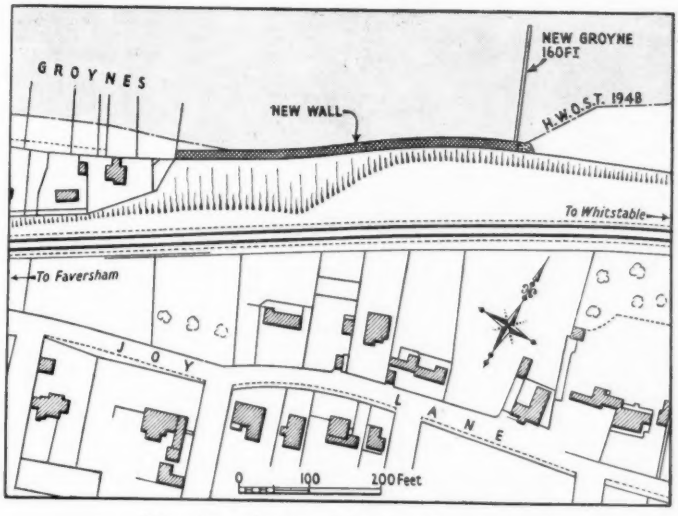
Forty years ago, the high-water mark of Spring tides was 27 ft. 6 in. seaward of the railway boundary, at its closest point, but the sea encroached steadily, until, in 1913, the boundary fence had become undermined. The bank was then protected by chalk filling, faced with sleeper campsheeting, supported by old rails. This measure proved effective for several years, although, by 1920, the concrete blocks forming the anchorage for the rails supporting the campsheeting had become exposed.

The provision of groynes along this section of beach was considered, but, as the wall was still fulfilling its function, and the groynes would have obstructed the footpath along the foreshore, in front of the railway boundary, no further action was taken. A base line was set out, however, and a series of cross-sections taken, to establish a record of changes in the profile of the foreshore. These sections were checked at regular intervals.

Continued Erosion

By 1932, high-water mark was within 2 ft. of the railway boundary, at its closest point, with a corresponding advance in the position of the loose shingle, and the public footpath had been washed away. The heavy gales, and abnormally high tides, which occurred in 1936 and 1938, breached the wall at a number of points, and caused extensive damage. On the night of February 12, 1938, the shingle bank to the east of the railway wall was breached, and a large area of the low-lying land between this and the railway embankment was flooded, and at the same time several dwellings wrecked.

The same gale washed away 108 ft. of the campsheeted wall along the beach, and subsequent erosion behind the wall, coupled with heavy rainfall, resulted in a number of slips on the bank between the sea and the railway. These slips broke the permanent way drains which discharged on to this bank, and the resultant seepage of water into the clay accentuated the trouble. The drains were repaired, and carried down the bank to the foreshore, where openings were provided in the campsheeting for the water to discharge on to the beach.



Site plan, showing position of new seawall

Severe gales, and high tides, occurred in September, 1945, when the sea broke through the wall in five major places, extending over a length of 200 ft. During the war, tubular steel scaffolding, and barbed wire beach defences, had prevented the checking of the cross-sections. When these obstacles were removed, it was found that the tide line had moved appreciably closer to the boundary for two-thirds of the length of the wall. Moreover, the raising of the campsheeted wall, as a wartime defence measure, had been accomplished by placing 3 ft. of mass concrete on top of the existing structure, without providing any adequate foundation, and this mass was deeply undermined, and in danger of collapse. The sea had carried away practically the whole of the beach along this frontage, exposing the clay in many places, and the groynes were in a dilapidated condition.

Alternative Designs Considered

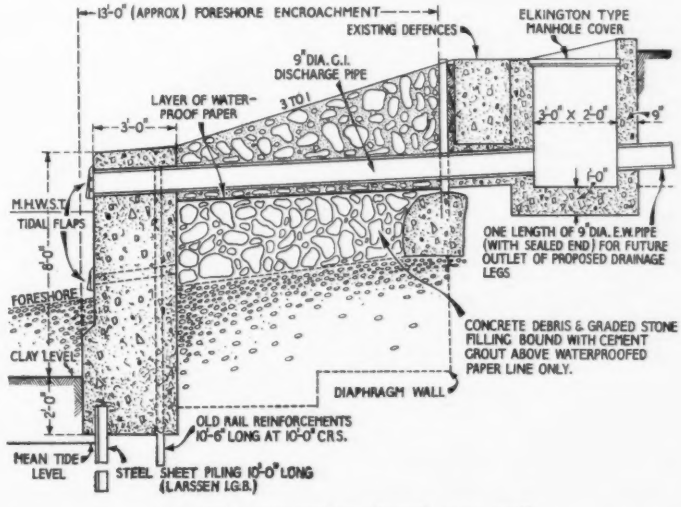
Further damage was caused during 1946, and large-scale measures to combat the inroads of the sea became imperative. The owners of the foreshore, the Seasalter & Ham Oyster Fishery Company, agreed to an encroachment of 10 to 13 ft., on a frontage of 500 yd., for the provision of a permanent defence work, in advance of the existing line, and to the construction of a series of groynes, at an angle of rather less than 90 deg. to the new work.

Several schemes were considered, comprising:—

1. A steel sheet piling wall, backed with mass concrete.
2. A mass concrete wall, with a battered face and "throwback" coping, and a steel sheet piling skirt to prevent scour.
3. A ramped breastwork, incorporating a mass concrete toe wall founded on a line of No. 1 G.B. Larssen steel sheet piling. The seaward face of the wall was to be 13 ft. from the existing campsheeted wall, and the intervening space packed solid with brick and concrete hardcore, suitably drained, and the top portion of the ramp finished to a slope of 3 to 1, and slurried in with cement grout.

An important feature of the third scheme was that much of the material required for the ramp was readily available in the shape of brick and concrete debris from the demolition of defence works along the foreshore, and elsewhere on the Eastern Division of the Southern Railway. This appreciable saving in costs led to its adoption, and the works were begun late in the autumn of 1947.

To provide for future drainage of the clay slope, and also to carry off any water which might collect behind the wall, seven manholes are incorporated in the scheme, each with a 9 in. dia. inlet from the bank above, and from either side. The man-


13'-0" (APPROX) FORESHORE ENCROACHMENT
EXISTING DEFENCES
ELKINGTON TYPE MANHOLE COVER
9" DIA. G.I. DISCHARGE PIPE
LAYER OF WATER-PROOF PAPER
3 TO 1
3'-0"
3'-0" x 2'-0"
9"
1'-0"
M.H.W.S.T.
TIDAL FLAPS
6'-0"
FORESHORE
CLAY LEVEL
2'-0"
ONE LENGTH OF 9" DIA. E.W. PIPE (WITH SEALED END) FOR FUTURE OUTLET OF PROPOSED DRAINAGE LEGS
CONCRETE DEBRIS & GRADED STONE FILLING BOUND WITH CEMENT GROUT ABOVE WATERPROOFED PAPER LINE ONLY.
DIAPHRAGM WALL
OLD RAIL REINFORCEMENTS 10'-6" LONG AT 10'-0" CRS.
MEAN TIDE LEVEL
STEEL SHEET PILING 10'-0" LONG (LARSSEN I.G.B.)

Typical cross-section through new wall

holes are connected to the seaward face of the wall by 9 in. dia. cast-iron pipes, fitted with tidal flaps. Similar flaps are fitted to the 4 in. weep pipes draining the hardcore, to prevent small particles of filling being removed by the wash of water through these outlets.

Protection of the Works

To avoid damage to the dry rubble filling by wave action, a layer of waterproofed paper is inserted a little above the mean high-water level of Spring tides, and the whole of the filling above this level is bound with 6 to 1 concrete, well slurried in. The finished surface is left smooth.

To localise the scouring action of heavy seas breaking over the toe wall before the rubble filling was completed and surfaced, five 18 in. rubble diaphragm walls, set in 3 to 1 Portland cement mortar, and founded at 1 ft. above the underside of the toe wall, were constructed up to the level of the waterproofed paper, at approximately 80 ft. centres. This division of the filling into sections minimised the danger of serious damage while the works were in progress.

The possibility of seas running up the 3 to 1 slope, and saturating the clay behind the wall, was not overlooked. It was considered, however, that the failure of the existing campsheeting had been due more to the action of the water washing through the interstices between the sleepers, and running out below the wall, carrying clay with it, than to the weight of the seas breaking against the campsheeting, and falling directly on the clay slope lying behind it.

In view of the general solidarity of the new work, it has been decided not to provide a "throwback" coping until the effectiveness of the structure to protect the bank has been determined under a wide range of wind and tide conditions.

Similarly, although the scheme included the provision of four new groynes along the wall, it was decided, in the first instance, to construct only the groyne at the east end, as it was essential to halt the erosion of the natural shingle spit at this point, which formerly protected the bank and the low-lying land between the foreshore and the railway. This groyne consists of sleepers supported by old rails, bolted together in pairs, and driven into the foreshore at 8 ft. centres. It extends for 160 ft. from the face of the toe wall.

The works, which have now been completed, are being carried out under contract by R. R. Robinson & Co. Ltd., 41, Parliament Street, London, S.W.1.

The French Railways Testing and Research Laboratories

General and special laboratories designed and equipped to cover all the major services of the S.N.C.F.

THE French National Railways Company maintains its own laboratories for applied scientific research to keep abreast of technical progress on a national and international scale. The general principles on which the laboratories are organised were reviewed in a paper by M. Chan, Chief Engineer, read before the Federation des Associations et Sociétés Françaises d'Ingénieurs in November, 1947. In all stages of railway research work, he pointed out, the organisation aims at keeping the railway research workers in constant touch with the railway staff immediately concerned with the particular problem. The S.N.C.F. engages many young men because of their scientific qualifications, and although they may not all be employed in testing or research work, it is found advantageous to have throughout the railway system men capable of making scientific observations and occasional suggestions.

After indicating general principles, M. Chan gave details of the existing railway research laboratories in the two main services, Matériel et Traction (rolling stock and running), and Installations Fixes (permanent way, bridges, structures, etc.). Some of the laboratories are in joint use, and there is also a liaison between the two services formed by the committee Rail et Roue (Rail & Wheel), which comprises the heads of the two technical services and their collaborators. To solve problems referred to it, the committee has the laboratories at its disposal, and may also consult scientific advisers

Laboratory for General Technical Purposes

In joint use for general technical purposes there is the Chemical & Mechanical Testing Laboratory at Levallois (Seine), and its annexe in Paris. This laboratory undertakes reception tests and examination of materials for all services, which form sixty per cent. of its work. It is under the direct management of the Central Technical Service for Rolling Stock & Running.

It also examines damaged parts for all railway services. Its research work proper includes such matters as physico-chemical equilibrium of salts dissolved in boiler waters with a view to avoiding scale formation; lessening noise and vibration in coaches; melting of metals for boiler plates; studies by photo-elasticimetry and extensometers of parts in rolling stock and the permanent way; studies of stresses by X-rays; identification of oils by distilling in a cathodic vacuum; and research required for drafting specification of materials. The mechanical equipment includes a traction machine of 150 tons, and the physics apparatus comprises two photo-elasticimetric benches, a spectrograph, and an X-ray apparatus of 40 kV.

In addition, for general technical purposes there are electrical laboratories at La Folie (Seine) and at Vitry-sur-Seine. They are equipped for receiving and testing new or repaired electric material, maintaining electrical measuring instruments in good condition, and aid in improving electro-technical apparatus. A special dynamometer coach is being equipped for direct measurements of electrical phenomena in electric transmission lines and electric locomotives.

Special Railway Laboratories

Special laboratories include the testing bench for steam locomotives at Vitry. On the bench a locomotive may develop 4,000 h.p. and run for two hours with no more than small percentage variations in its running characteristics. The bench consists essentially of a series of roller brakes, turned by the axles. Each roller can support an axle-load of 30 *tonnes*, whereas the normal load is 23 *tonnes*, and rotate at the rate of 100 m.p.h. In an annexe there is an installation for the special study of braking.

Another laboratory, in Paris, is equipped for research work in the stability of locomotives and rolling stock. Here, reactions between rail and wheel are investigated. This branch of research, directed by M. Mauzin, is of comparatively recent origin. Running difficulties and distortion of rails, noted within the last twenty years since the introduction of certain high-speed locomotives, present new problems. Piezo-electric quartz apparatus and cathodic oscillograph recorders are used for the purpose of measuring the reactions between wheels and rails.

The apparatus is fitted up in special coaches run behind the locomotive or other vehicle under investigation. As many as 19 simultaneous records are made of measurements on all axles of vertical and lateral thrusts and displacements. The results give decisive aid in the choice between different types of high-speed electric locomotives, and also guide the construction and authorise the running of high-speed locomotives. In 1938, for instance, the running of the P.L.M. streamline train at 85 m.p.h. was authorised only after tests by the quartz apparatus.

Ideal conditions of suspension also may be tried out. The piezo-electric quartz apparatus used in these tests was devised from the suggestions of the late Professor Langevin, of the College de France; for practical railway use it has since been greatly developed by M. Mauzin.

Permanent Way Tests

General technical and testing work for the permanent way is undertaken in the Chemical & Mechanical Testing Laboratory at Levallois. Other special technical work is done at the Engineering Works Division in Paris. As one of the greatest constructors of bridges and other railway structures in France, the S.N.C.F. conducts research into bridges, foundations, erosion of river and canal banks, and the stability of soils. It also periodically inspects and tests existing structures. Work done in recent years includes tests of reinforced concrete girders in conjunction with the Laboratories of Public Works in the Rue Brancion, Paris. These tests gave a great impetus to the reconstruction of railway bridges from 1940 to 1944. Among other things, it has developed a sensitive optical apparatus, using polarisation, for precision measurements of deflection in reinforced concrete girders.

At the Rail Laboratory in Paris, rails supplied to the French National Railways are tested. This laboratory also conducts research into the manufacture of rails, and endurance tests under service conditions. It plans to add to its existing plant a machine for testing full-length rails under high-speed running loads. Tests and researches concerning railway signalling are carried out at the Central Signalling Laboratory, Saint-Ouen, Paris, details of the equipment of which were given in our issue of March 19. This laboratory operates in liaison with the laboratories of the post, telegraph, and telephone services and the central laboratory of the electrical industries.

Seawall Protecting Railway, Whitstable, Southern Region

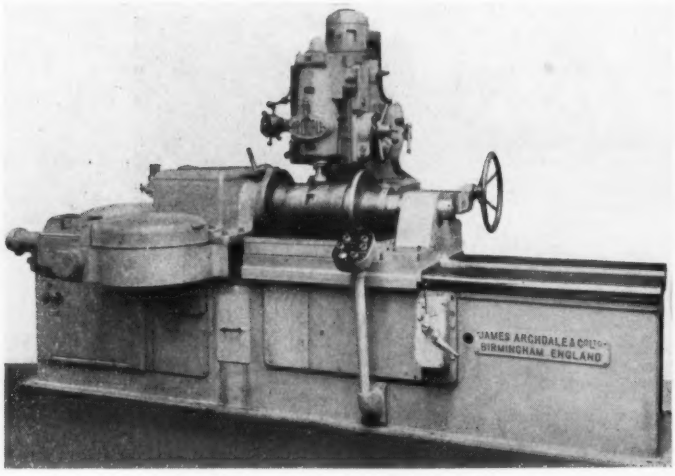
Finished section of seawall, east end, showing layer of waterproofed paper and 9-in. diameter cast-iron drain

General view, showing high-water marks on beach, and rubble blockwork protection at east end of new wall

Engineering Library

A New Valve Port Milling Machine

Wartime experience in aero-engine production now is being applied to locomotive work



Archdale valve port milling machine

A NEW machine tool for milling ports in locomotive valve liners and sleeves has been produced by James Archdale & Co. Ltd. as a result of experience gained by the firm during the late war in profiling ports in aero-engine cylinders and sleeves.

On the new machine the work to be milled is carried by a substantial arbor and is moved both axially and circumferentially under the action of large edge cams. These movements produce the port forms in conjunction with a milling head with down feed. The cams can be changed in a few minutes, one pair being required for each port shape. The arbor is mounted on slides on the head which eliminate the old knee construction.

A 5-h.p. motor drives the spindle through hardened and ground spur gearing, giving 12 changes, the speeds ranging from 65 to 1,620 r.p.m. The spindle has a No. 50 standard taper which normally carries a collet chuck suitable for parallel shank cutters, though adaptors for taper shank cutters can be supplied if required. The spindle slide has four rates of down feed from 0·027 in. to 0·16 in. a minute. There is quick hand adjustment and an automatic trip to stop the feed at a predetermined depth. The spindle head as a whole has hand adjustment along the length of the liner to suit the port position.

The work arbor carries adaptors to suit the internal diameter of the work and has an index plate and plunger to define the angular position of the ports. At one end the arbor extends into the work-head housing the cams and at the other end it is supported in a tailstock. The component is clamped between the two coned adaptors which fit into each end. When the clamping nut which holds this assembly in position on the arbor is released, the component, together with its adaptors, is lowered slightly on to vee blocks underneath.

These blocks, together with the tailstock, are on a slide which can be traversed hydraulically to the right, when the work, with its adaptor and the tailstock, can be moved axially clear of the work arbor. The machine can be unloaded from this position, and a fresh component, with its adaptors, can be loaded on the tailstock slide clear of the arbor. The slide can then be traversed to the left, where the component will be threaded over the arbor and clamped in position for port cutting. Traverse to the left engages the free end of the arbor with the tailstock so that it is supported at both ends during profiling.

The profiling motion has two separate elements, axial and circumferential, each controlled by a large edge cam operating against a roller on its periphery. The cams are driven by a 3-h.p. motor at the rear of the work headstock through pick-off gears and reduction gearing to two worms, one of which drives the axial cam and one the circumferential cam. The worm drive has a backlash eliminator so that the two components of the profiling motion are synchronised. The pick-off gears control the profiling speed. The work headstock, carrying the two cams and their drive, moves on rollers on the machine bed under the action of the axial cam. The circumferential motion is transmitted from its cam to the work spindle through a transverse rack bar and a segmental rack. The cams are kept in contact with their respective rollers by two hydraulic cylinders which exert constant pressure between each cam and its follower roller.

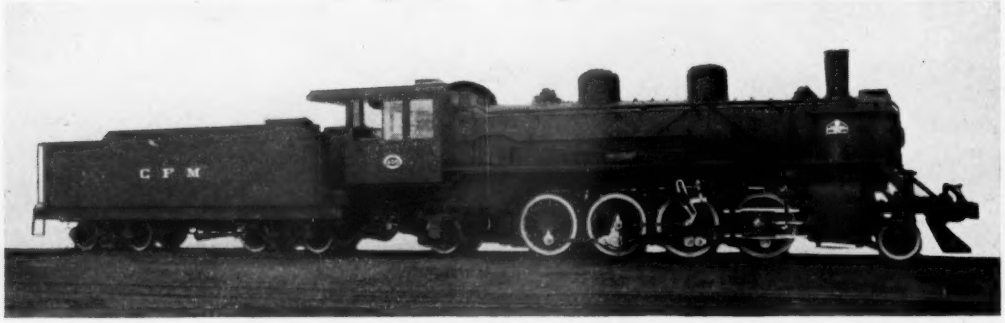
The hydraulic unit is self-contained and housed in the rear of the column. It has a 3-h.p. motor driving two variable delivery pumps and one constant delivery pump. The two variable delivery pumps serve the two cam motion take-up cylinders, their output being adjusted to suit the profiling rate, and the constant delivery pump feeds the tailstock traversing cylinder.

The electrical control gear is a self-contained installation in the rear of the column, and the various motors are controlled by push buttons at the control position. The coolant system uses paraffin, which is contained in a tank in the bed. An aperture for raking out cuttings is provided in the bed.

Maximum and minimum component diameter	16 in. max. outside dia. 8 in. min. inside dia.
Maximum length of component	22 in.
Maximum length of port	4½ in.
Maximum angle of port	55 deg.
Diameter of cutters	1 in. max.; ⅜ in. min.
Speed range (12 speeds)	65-1,620 r.p.m.
Feed range (4 feeds)	0.027/0.16 i.p.m.

The makers state that the possibility of machining a port within the dimensions specified will depend to some extent on its geometry.

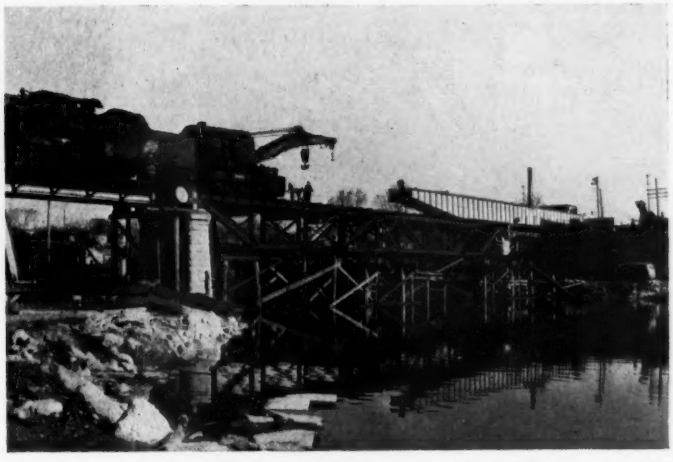
Baldwin 2-8-2 Locomotive for Portuguese East Africa



One of a series of ten 2-8-2 locomotives recently built for the Mozambique Railways 3 ft. 6 in. gauge lines, by the Baldwin Locomotive Works, U.S.A.

Swing Bridge Renewal on the Chicago & North Western Railway

A 162-ft. deck lattice-girder swing span was replaced in 9 hr. by a plate-girder span weighing 140 tons



Crane and locomotive drawing new span into position over the old bridge

THE Chicago & North Western Railway decided some time ago to replace the single-line swing span over the Sheboygan river in Wisconsin. The pivot and end piers were in good order, and, though there is at present no necessity for a swing span at this point, it was considered advisable for the new span to be easily convertible to a swing bridge should it become necessary at some future time.

The new span was designed therefore as a plate-girder deck structure 162 ft. long, with the girders 7 ft. apart, and their middle three-fifths 7 ft. 6 in. deep, and the remaining one-fifth at each end tapered, the whole capable of central and end support. This span, which weighs 140 tons, was the longest completely shop-riveted span ever consigned from the Gary, Indiana, shops of the American Bridge Company. It was loaded on two 200-ton flat trucks with a dummy between them, and one at each end, five trucks in all.

Work before the changing of the spans consisted of the erection of timber-pile falsework beneath and to one side of the old underslung lattice-girder deck span. The falsework was decked suitably to enable the old span to be jacked up on to rollers and rolled aside, when the new span was ready for replacement.

Unloading New Span

On arrival, the new span was unloaded by two locomotive breakdown cranes on to a prepared spot beside the main line to one side of the bridge. With it were retained the four transverse oak bolsters on which it had rested on the trucks. These bolsters were then shod with 24-in. I-beams laid on their sides; the lower halves of the flanges of these beams had been notched at standard gauge spacing. The notches, of sufficient width to include the rail heads of the main-line track, were cut right back to the webs of the beams.

When the engineers took possession of the line at 5 a.m., therefore, the two cranes were able to lift the new span on to the track along which it could be slid without fear of transverse movement, by reason of the notches engaging the rails. The full 24-in. widths of the beam webs were also available to transmit the load to the rails, and facilitate sliding without damage to the rail-heads. Meanwhile, a new steel centre tower had been assembled on low staging beside the centre pier, ready to be moved into place on the pier.

Fitting the New Span

Preceded by one of the cranes, and followed by the other, the new span was slid across the old one until exactly over it; the movement was executed with the aid of cables attached to the leading crane, which was hauled by a locomotive. The cranes then lifted the new span up clear of the old one, to allow the latter to be jacked up and hauled sideways by block and tackle, the cables running through sheaves on the outer edge of the falsework to a locomotive located on each side of the river.

As soon as the old span was clear, the new steel centre tower was moved into position, and the new span lowered on to it and the abutments. The rails were dismantled from the old, and relaid on new sleepers on the new span, and by 2 p.m. the regirdered bridge was ready for traffic, nine hours after work began. Traffic was diverted meanwhile.

The work was carried out under the

Cranes holding new bridge aloft while the old bridge is moved aside on rollers

general supervision of Mr. E. C. Vandenburgh, Chief Engineer, C.N.W.R., and Mr. A. R. Harris, Engineer of Bridges, C.N.W.R., who describes it in an article in our contemporary, *Engineering News-Record*, to whom we are indebted also for the accompanying illustrations, that on the right showing workmen laying sleepers on the new bridge.

INTERNATIONAL TOURIST CONGRESS IN LUXEMBOURG.—Total membership of the International Union of Official Tourist Organisations now comprises 34 nations. Three new members are Australia, Argentina, and Turkey whose representatives were welcomed by the President, Mr. Ernest Wimble, Great Britain, at a recent meeting of the Executive Committee in Lausanne. Mr. Wimble reviewed the progress made by the regional commissions during the twelve months and it was decided to hold the next congress at Luxembourg in September, 1949.

Beyer-Garratt Locomotives for Rhodesia

On October 30, the first two locomotives of a consignment of 20 built for the Rhodesia Railways by Beyer, Peacock & Co. Ltd., were transported by British Railways by special train to Birkenhead from Gorton, Manchester, and in the photograph reproduced above the locomotives are shown in Openshaw sidings. Possession of both tracks was necessary throughout the journey to Birkenhead

ZONAL SCHEME AT BRECON.—As part of the British Railways zonal scheme, a new zone based on Brecon as railhead, with a sub-railhead at Builth Wells, has been brought into operation by the Western Region; the new zone is approximately 650 square miles in area. The zonal scheme is designed to improve the transit of smalls consignments between all districts served by British Railways, and involves the concentration of goods on a smaller number of stations, thus enabling full truck loads to be made up and despatched direct from zone to zone, and obviating transhipment *en route*. Collection and delivery is performed by British Railways road fleet operating from the railheads and sub-railheads instead of from individual stations, as previously. The new railhead and sub-railhead will deal with traffic originally handled at 28 stations.

MORE BAGNALL LOCOMOTIVES FOR INDIA.—The firm of W. G. Bagnall Limited, Castle Engine Works, Stafford, has received an order from the Gaekwar's Baroda State Railways for 10 "ZB" Class 2 ft. 6 in. gauge 2-6-2 locomotives with cylinders 12 in. dia. and 18 in. stroke. Another order received from the same railways earlier this year was for seven "A" class metre-gauge locomotives of 4-6-0 wheel arrangement and cylinders of 15½ in. dia. by 22 in. stroke. Four 2 ft. 6 in. gauge "W" class 0-6-2 engines with cylinders 11½ in. dia. and 15 in. stroke recently have been despatched to India. Other recent orders include two metre-gauge 0-8-0 side tank engines for South America and two fireless locomotives for the Accrington fire station of the British Electricity Authority. One standard-gauge 0-4-0 saddle tank engine with cylinders 14 in. dia. by 22 in. stroke is being supplied to the National Coal Board.

Motorships for the Isle of Wight Service

Modern twin-screw vessels built for the Southern Region are taking the place of paddle steamers on this popular route

TWO new motorships, the *Southsea* and the *Brading*, shortly will be engaged in the Isle of Wight service of the Southern Region. The first of these vessels started in regular service on Monday in last week, as was reported in our issue of November 5, and the second is now completing her trials. These are the first screw-driven vessels to be built for this service, and in other ways, also, they are a radical departure from the traditional paddle boats which have maintained the Portsmouth-Ryde service for very many years.

Replacements

Built for British Railways by W. Denny & Bros. Ltd., and launched at Dumbarton early this year, these vessels, which are 200 ft. in length and 837 gross tons each, replace the old *Southsea* and the *Portsdown* lost during the war. They have a speed of 14½ knots, are designed for passengers and baggage, and have accommodation for 1,400 passengers and a crew of 33.

The promenade deck has ample seating capacity, some of which is under cover, while on the main deck there is a large first class smoke room, with a first class lounge and bar buffet, and also a third class lounge and shelter deck. The lower deck has first and third class refreshment rooms fitted with bar buffets. Mechanical ventilation is provided throughout. Both vessels are equipped with Cossor radar.

The main machinery consists of two sets of two-stroke airless-injection port-scavenge type Sulzer 8-cylinder diesel engines of 950 b.h.p. each, drive to the propellers being transmitted through oil-operated gearboxes of S.L.M. make which provide for rapid manœuvring ahead or astern without reversing the main engines. Lighting and power for the electric auxiliary machinery, including steering gear and capstans, comes from three Ruston & Hornsby diesel generator sets each of 60 kW. output.

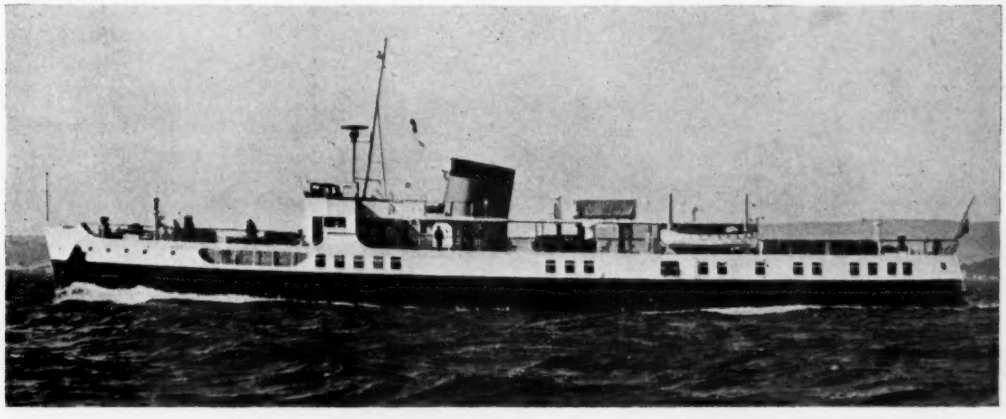
At a lunch on the *Southsea* on October 29, when the vessel made a short cruise on the Solent conveying officials from Ryde and Portsmouth and representatives of the press, Mr. R. P. Biddle, Docks & Marine Manager, Southern Region, said that 2¾ million passengers were carried on this route in 1947, more than 12½ per cent. above the figure for 1938, and that figure looked like being beaten this year, because during the first nine months nearly 12,000 more passengers had been carried, as compared with the corresponding period last year.

The popularity of the service had been the cause of some delay in the height of the summer season, but the two new ships, both of which could carry 30 per cent. more passengers than the largest paddle steamer in the service, would prevent undue waiting next year.

Mr. O. H. Corble, Chief Officer (Marine), Railway Executive, said that the railway steamship services were one of their most paying propositions, and they were anxious to maintain the adequacy and efficiency of this service.

Other speakers at the luncheon were Mr. C. Grasemann, Public Relations & Advertising Officer, Southern Region, and the Mayor of Ryde.

CHRISTMAS CONTINENTAL SERVICES VIA HARWICH.—On Christmas day, both the day and night services, in each direction between Harwich and the Hook of Holland, will be cancelled. There will be no change to the Antwerp service, but the Esbjerg sailings will be amended to leave Harwich, Parkeston Quay, on Monday, Wednesday, and Friday, December 20, 22, and 31, and to leave Esbjerg for Harwich on Tuesday and Wednesday, December 21 and 29. On Wednesday, December 22, the "Scandinavian" boat train will leave Liverpool Street Station at 3 p.m., giving an arrival at Harwich, Parkeston Quay, of 4.45 p.m. The normal 10.5 a.m. from Liverpool Street on this date is cancelled.



Southern Region m.s. "Southsea" on a recent trial trip

First class lounge

First class smoke room

Bagnall 2-4-2 Tank Locomotives for Egypt

A light oil-burning side-tank design for use on the Egyptian State Railways standard gauge

RECENTLY, W. G. Bagnall Limited has constructed an interesting class of oil-fired 2-4-2 side-tank locomotives at the Castle Engine Works, Stafford. These locomotives, of which eight have been built, are for operation on the 4 ft. 8½ in. gauge lines of the Egyptian State Railways.

The cylinders are arranged outside the frames and have a diameter of 13½ in. and a stroke of 20 in. The coupled wheels, 3 ft. 8 in. in dia., are spaced 7 ft. 3 in. apart, although the total engine wheelbase is 22 ft.

The boiler barrel, which is made in two rings, has a length of 10 ft. 6½ in. and a minimum internal dia. of 3 ft. 6¼ in. The plates are of $\frac{7}{16}$-in. Siemens Martin open-hearth basic steel. A Belpaire firebox is used, the shell being 4 ft. 6 in. long by 3 ft. $10\frac{7}{16}$ in. wide (outside) at the foundation ring. The longitudinal stays are of solid forged steel; the top of the firebox is stayed by steel direct stays and the inner and outer fireboxes are stayed together by $\frac{7}{8}$ in. dia. steel stays. The boiler is protected by two safety valves of the Ross pop type fitted on top of the firebox and set to blow off at 160 lb. per sq. in. There is no superheater. The boiler is lagged with asbestos mattresses encased in steel sheets and pressed steel mouldings. A single firedoor is fitted, swinging on a vertical pivot. The oil burning apparatus was supplied by Laidlaw Drew & Co. Ltd., of Leith.

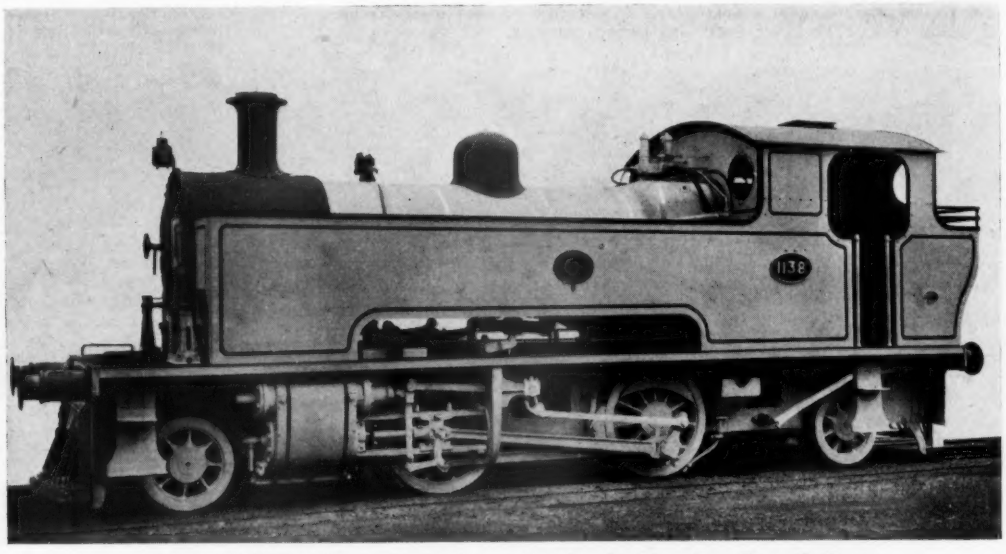
Siemens mild-steel plate is used for the smokebox, which is fitted with an air-tight mild-steel flanged door and baffle plate. The water tanks, which are placed on either side of the boiler, are of mild steel plates and hold 1,000 gal. of water; they are equipped with a water lifter. Oil fuel is carried in a tank having a capacity of 375 gal., situated at the rear of the cab.

A powerful steam brake is fitted, which works in conjunction with a hand brake, but also is capable of independent operation.

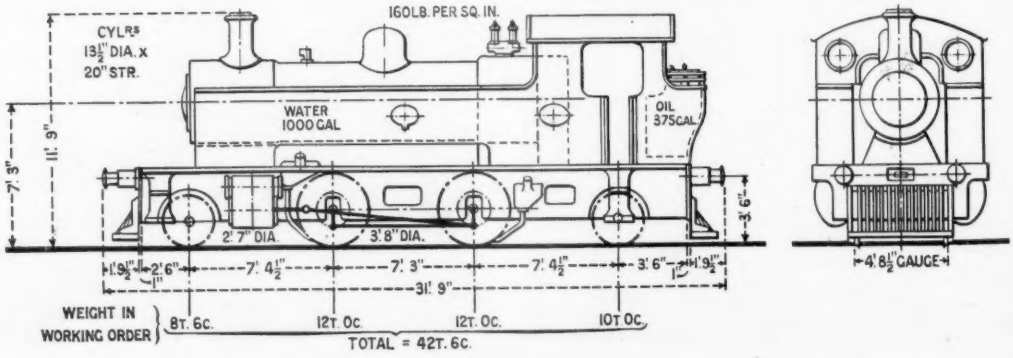
These engines have a tractive effort of 11,300 lb. at 85 per cent. of the boiler pressure, and are capable of hauling loads of 650 tons (exclusive of their own weight) on the level. The principal dimensions of the new 2-4-2 tank locomotives are as follow:—

Gauge	4 ft. 8½ in.
Cylinders, dia. × stroke	13½ in. × 20 in.
Dia. of coupled wheels	3 ft. 8 in.
,, leading ,,	2 ft. 7 in.
,, trailing ,,	2 ft. 7 in.
Rigid wheelbase	7 ft. 3 in.
Total ,,	22 ft. 0 in.
Max. height	11 ft. 9 in.
,, width	9 ft. 0 in.
Length over buffer bars	28 ft. 2 in.
Heating surface—	
Tubes	635·5 sq. ft.
Firebox	71·5 ,,
Total	707 ,,
Grate area	13 ,,
Working pressure	160 lb. per sq. in.
Tractive effort at 85 per cent. boiler pressure	11,300 lb.
Weight when empty (approx.)	34 tons 4 cwt.
,, in working order (approx.)	42 tons 15 cwt.
Ratio, adhesive weight/tractive effort with tank and fuel bunker half full	4·3/1
Bunker (fuel tank) capacity	375 gal.
Water tank capacity	1,000 ,,

INSTITUTE OF TRANSPORT, METROPOLITAN GRADUATE & STUDENT SOCIETY.—The annual general meeting of the Institute of Transport, Metropolitan Graduate & Student Society, will be held at 80, Portland Place, London, W.1, on November 23. Following this meeting, Mr. J. Skegg will read a paper: "Transport Staff Welfare."



Bagnall oil-fired 2-4-2 side-tank locomotive for the Egyptian State Railways



Principal weights and dimensions of the new 2-4-2 tank locomotive

RAILWAY NEWS SECTION

PERSONAL

The Minister of Transport has appointed Mr. P. J. Dalmahoy and Mr. G. I Morris as Under-Secretaries in the Ministry. With the approval of the Prime Minister, Mr. Dalmahoy will, as from January 1 next, succeed Mr. S. A. Bailey as Principal Establishment & Organisation Officer.

We regret to record the death on November 1, at the age of 57, of Mr. H. B. Emley, C.M.G., North Eastern Divisional Waterways Officer, Docks & Inland Waterways Executive, and previously General Manager of Aire & Calder Navigation. He was a former General Manager of the Sudan Railways. A portrait and biography of Mr. Emley appeared in our issue of February 20 last.

Lt.-Colonel D. McMullen, R.E. (lately Chief Operating Superintendent, North Western Railway, Pakistan), has been appointed an Inspecting Officer of Railways in the Ministry of Transport.

Mr. W. H. Glossop, Assistant to Principal & Chief Instructor, Derby School of Transport, has been appointed Training & Education Officer, Railway Executive Headquarters, London.

Señor Alfredo J. Job, General Manager of the Argentine State Railways, recently tendered his resignation to the Secretary of Transport, who appointed Señor Humberto C. Carutti in his place.

We regret to record the death on October 26 of Lt.-Colonel F. E. Shirley Beavan, C.B.E., D.S.O., Managing Director of Mountstuart Dry Docks Limited.

London Midland Region Staff Changes

The following staff changes are announced by the Railway Executive, London Midland Region:—

Mr. C. R. Campbell, Assistant Divisional Operating Manager (Motive Power), Crewe, to be Divisional Motive Power Superintendent (Western Division), Crewe.

Mr. O. E. Kinsman, Assistant Divisional Operating Manager, Derby, to be Divisional Motive Power Superintendent (Midland Division), Derby.

Mr. A. H. Madden, Assistant Divisional Operating Manager, Manchester, to be Divisional Motive Power Superintendent (Central Division), Manchester.

The following alterations in titles have been made from November 1:—

Divisional Operating Manager becomes Divisional Operating Superintendent.

District Operating Manager becomes District Operating Superintendent.

District Traffic Manager becomes District Traffic Superintendent.

District Locomotive Superintendent becomes District Motive Power Superintendent.

We regret to record the death on November 4, after a serious illness, within four days of his 74th birthday, of the Rt. Hon. Lord Ashfield of Southwell, P.C., a Member of the British Transport Commission since its inception, and previously Chairman of the London Passenger Transport Board. He had a long and distinguished career, to which reference is also made in an editorial article in this issue. Albert Henry Stanley,

The late Lord Ashfield

A Member of the British Transport Commission, and previously Chairman of the London Passenger Transport Board

Baron Ashfield of Southwell, was born at Derby on November 8, 1874, and in his early years accompanied his parents to the U.S.A., where he received the greater part of his education. His first post was with the Detroit City Street Railway Company; at the age of 18 he became Superintendent of one of the divisions, and by the age of 20 was in control of the whole street railway system of Detroit. In 1898 he served in the Spanish American War as an ordinary seaman in the U.S. Navy. In 1903 he relinquished the post of General Superintendent, Detroit City Street Railways, and became Assistant General Manager, Street Railway Department, Public Service Corporation of New Jersey. By 1907 he had become General Manager of that corporation; but in the same year he returned to England, as General Manager of the Metropolitan District Railway. In 1910 he became General Manager of the London United Tramways, and was also appointed Managing Director of the Underground Electric Railways Co. of London Ltd, and its then associated companies. In 1914 he received the honour of knighthood. In 1916 he became Director-General, Mechanical Transport, at the War Office; and on the formation of Mr. Lloyd George's first Cabinet he became President of the Board of Trade and Privy Councillor, and coalition Unionist M.P. for Ashton-under-Lyne. He returned to the Underground in 1919, and was appointed Chairman & Managing Director of the Underground group. In 1920 he was raised to the peerage. Between 1930 and 1933 Lord Ashfield was constantly engaged in the negotiations which led to the London Passenger Transport Act, and on the formation of the Board in 1933 he became its Chairman. Under his Chairmanship the Board proceeded with many extensions and improvements. In May, 1940, he became a member of the Railway Executive Committee; and during that year the London Aircraft Production Group, consisting of the Board and four London road vehicle manufacturers, was formed, of which he became Chairman. Last year Lord Ashfield became an original Member of the British Transport Commission, and he resigned the Chairmanship of the London Passenger Transport Board as from October 31, 1947. He continued to be Chairman & Managing Director of the Northmet Power Company, and also as a Director of the Midland Bank Limited and of Imperial Chemical Industries Limited. He had been a member, among other bodies, of the University of Cambridge Appointments Board and the Imperial Communications Advisory Committee. He was a Fellow of the Royal Society of Arts, and a Past-President of the Institute of Transport. The funeral took place privately on November 6 at Golders Green Crematorium.

The following are extracts from a tribute to Lord Ashfield contributed to *The Times* by Sir Cyril Hurcomb (Chairman of the British Transport Commission):—

I met Lord Ashfield first when he was President of the Board of Trade and I was in the Ministry of Shipping. At the height of the submarine campaign and in the critical spring of 1918 grave decisions had to be taken at short notice involving drastic curtailment of the import of raw materials. His grasp of a changing situation and the swift courage with which he was prepared to act made a great impression on me.

The improvement and development of London Transport were his main work. For that he planned and of that he thought incessantly. It was to him an absorbing concern and the passionate interest of his life, as well as the field of his great constructive power. For the last year Lord Ashfield had been a Member of the British Transport Commission. In its formation he was invariably helpful in things big or small. Particularly will his colleagues remember the wealth of his experience, his vision for the future and his belief in the unity of transport. His appreciation of the work of the staff who served under him was frequently expressed and manifested.

Mr. Charles Reymond

Secretary for Railways, Western Australia, 1946-48

The late Mr. J. R. Darbyshire

District Operating Superintendent, Barrow-in-Furness, L.M.S.R., and L.M. Region, 1945-48

The late Mr. J. D. White

District Goods, Passenger & Docks Manager, Barrow-in-Furness, L.M.S.R., and L.M. Region, 1946-48

Mr. Charles Reymond, who has retired from the post of Secretary for Railways, Western Australia, was born in South Australia on October 14, 1885, and went to Western Australia in 1902, when he entered the railway service. After holding various positions he was appointed Transport Officer, District Superintendent's Office, Geraldton; and in 1908, with two other traffic officers, he was transferred to the Audit Branch. In 1923 he was promoted to be Finance & Freights & Fares Officer in the Secretary's Branch, and later to be Assistant Secretary. He has accompanied three successive Commissioners to annual Conferences of Australian Railways Commissioners for 22 years. In the initial stages of the special wartime work undertaken by the present Commissioner of Railways (Mr. J. A. Ellis), Mr. Reymond acted as Secretary of the new Department of Rolling Stock Construction, and attended all War Railway Committee meetings. He also was appointed Deputy-Director of Transportation in Western Australia for the Commonwealth Government. He acted as Secretary for Railways for six months in 1939, and again in 1940. In 1942 he was appointed Deputy-Secretary for Railways, and, in 1946, Secretary.

Mr. N. C. Watney, who before partition was Superintendent, Mechanical Workshops, N.W.R., India, has been made Works Manager at the Indian Locomotive Construction Plant, Tatanagar.

We regret to record the death on November 4 of Mr. J. R. Darbyshire, District Operating Superintendent, Barrow-in-Furness, London Midland Region, British Railways. He was born in Liverpool and entered the service of the L.N.W.R. in 1904, in the Goods Department at Northwich. He was later attached to the District Superintendent's Office, Lime Street Station, Liverpool, as a relief clerk, and also served in a similar capacity at Crewe. He was appointed Head Office Inspector (Freight Services), attached to the District Traffic Office, Crewe, in 1924, and Head Office Inspector, Chief Operating Manager's Office, L.M.S.R., in 1932. Mr. Darbyshire returned to Crewe in 1934 on being appointed Outdoor Assistant to the Divisional Superintendent of Operation. From 1936 to 1938 he served on a routing committee appointed to investigate the best routes for working traffic between the amalgamated railways, returning in 1938 to his former appointment at Crewe. In 1945 he was appointed District Operating Manager, Barrow-in-Furness, and he was re-designated District Operating Superintendent on November 1, 1948.

WESTERN REGION APPOINTMENTS

Mr. D. M. Turnbull (formerly District Traffic Manager, Swansea, London Midland Region) to be Divisional Superintendent, Cardiff.

Mr. A. N. Butland, Assistant to Chief Engineer (Maintenance), to be Divisional Engineer, Taunton, *vice* Mr. M. G. R. Smith, appointed Assistant Civil Engineer.

Mr. A. F. Wigram (formerly Assistant Signal & Telecommunications Engineer, Scottish Region), to be Assistant Signal & Telecommunications Engineer.

Sir J. Frederick Heaton, Chairman & Managing Director of Thomas Tilling Limited, proposes to relinquish his Managing Directorship on the completion of the transfer of the company's interests in passenger road transport, and road haulage undertakings affected by the Transport Act, 1947, to the British Transport Commission. Including a period as Joint Managing Director, Sir Frederick Heaton has held the office of Managing Director for more than 23 years. He proposes to remain Chairman for the time being.

Mr. Stanley Kennedy, who has been a Director of Thomas Tilling Limited for nearly 19 years, and whose services have been absorbed almost entirely with the management of certain of the associated companies now being transferred to the British Transport Commission, is taking up an appointment with the Commission. This involves his resignation from the board of Thomas Tilling Limited, and Sir Frederick Heaton (the Chairman) has placed on record his appreciation of Mr. Kennedy's long and happy connection with the undertaking. The whole of the head office of the Tilling Association Limited, and some of the leading executives of Thomas Tilling at head office, are also taking office under the Commission.

We regret to record the death on November 3 of Mr. James Duff White, District Goods, Passenger & Docks Manager, Barrow-in-Furness, London Midland Region, British Railways. Mr. White joined the L.N.W.R. as a clerk in the Goods Department at Cockermouth in 1911. He served in H.M. Forces from November, 1915, to August, 1919, attaining the rank of Captain in the 2nd Battalion, Royal Scots. He resumed his railway career in August, 1919, and was posted to the District Traffic Superintendent's Office at Lancaster. Mr. White was transferred to Barrow-in-Furness when the District Goods Manager's Office, L.M.S.R., was established there in 1925, and in 1930 became District Traffic Agent, Whitehaven. He was made Docks Assistant to the District Goods, Passenger & Docks Manager, Barrow-in-Furness, in 1939 and Docks Superintendent, Holyhead, in 1943. He was appointed District Goods, Passenger & Docks Manager, Barrow-in-Furness, in April, 1946.

COASTAL SHIPPING ADVISORY COMMITTEE

The Minister of Transport has announced the formation of a Coastal Shipping Advisory Committee. The following are to represent the interests of persons engaged in coastal shipping:—

Mr. E. W. Burness (Managing Director, London Scottish Lines Limited), Mr. W. J. Everard (Director, F. T. Everard & Sons Ltd.), Sir John Fisher (Governing Director, James Fisher & Sons Ltd.), Mr. Kenneth R. Pelly (Chairman & Joint Managing Director, Wm. France Fenwick & Co. Ltd.), Mr. M. Arnet Robinson (Managing Director, Coast Lines Limited), Mr. D. S. Tennant (General Secretary, Navigators' & Engineer Officers' Union), Mr. Percy Wharton (Director, Coast Lines Limited), Mr. T. Yates (General Secretary, National Union of Seamen).

The British Transport Commission is to be represented by the following:—

Lord Rusholme (Member of the Commission), Messrs. G. L. Darbyshire, J. Elliot and T. F. Cameron (Chief Regional Officers, London Midland, Southern and Scottish Regions, British Railways), Mr. C. Barrington (Member, Road Transport Executive), Mr. J. B. Hastie (Divisional Manager (Freight), Scottish Division, Road Transport Executive), Sir Robert Letch and Mr. J. Donovan (Members, Docks & Inland Waterways Executive).

London Midland Region Revives L.N.W.R. Locomotive Names

The names of old L.N.W.R. locomotives have been chosen for eight of the unnamed 4-6-0 "Patriot" class locomotives of the London Midland Region. They will be named as they are converted at Crewe Works to take the 2A taper boiler.

The first of the selected locomotives to undergo these alterations left the works on November 3. This was No. 45545 and bears the name *Planet*. Names chosen for the other seven locomotives are *Vulcan, Goliath, Courier, Velocipede, Champion, Dragon,* and *Harlequin.*

These names have been specially chosen for their long association with the former L.M.S.R. and its constituents, the first use of the names in some cases going as far back as the Liverpool & Manchester and Grand Junction railways. It is appropriate that the names should be revived with the "Patriots," as these locomotives, as originally designed, were developments from the "Claughton" class which was the last design of express passenger engine to be built at Crewe by the L.N.W.R.

The wealth of locomotive history contained in the chosen names with which famous engineers and locomotive classes, past and present, have been associated, is shown by the following examples:

Planet, of the 2-2-0 type, built by R. Stephenson in 1830, was the star engine of the time, and conveyed a special train from Manchester to Liverpool in an hour, including a stop of two min. *en route* for water. Up to February 15, 1833, *Planet* had covered 41,400 miles. This engine was the real point of departure from which the modern British locomotive has been derived, in so far as it combined horizontal cylinders measuring 11 in. by 16 in. encased in the smokebox, crank axle, multitubular boiler with square firebox inside it, and a framing which supported the boiler. The driving wheels were 5 ft. and leading wheels 3 ft. in dia., the weight was 8 tons, and the boiler contained 129 1⅝ in. tubes. *Planet* was one of the most graceful engines of the day.

The original *Vulcan* was a 2-2-0 engine built by Fenton & Murray of Leeds in 1831. Since then, the name has been carried in turn by a Trevithick 5 ft. goods; Sharp six-coupled goods; Ramsbottom "Newton"; Webb "Precedent"; Bowen-Cooke "Prince of Wales"; and Fowler "Royal Scot" No. 6133, since renamed *The Green Howards.*

Courier was a 4-2-0 designed by Crampton and built at Crewe under Alexander Allan's supervision in 1847. This engine carried the name until 1854 when it was transferred to a Trevithick 5 ft. goods until 1875. From 1875 to 1877 the name was out of use, but in the latter year it was restored, to a Webb "Precedent" class engine, which brought the name into L.M.S.R. locomotive stock. The tradition was carried on by "Royal Scot" No. 6147 until it was renamed *The Northamptonshire Regiment.*

Harlequin was acquired by the L.N.W.R. from the Grand Junction Railway in 1846, and in the same year the name was given to a Trevithick 6 ft. passenger engine, which retained it until 1860. From 1860 to 1907 a Ramsbottom "Problem" bore the name, which then was brought into the L.M.S.R. by a Whale "Experiment."

Double-Deck Railway Coaches

Dealing with modern developments in passenger-carriage design, in the course of his paper to Section G (Engineering) of the British Association, at Brighton (mentioned in our September 24 issue), Mr. O. V. Bulleid made reference to a proposal for the use of double-deck coaches for suburban working.

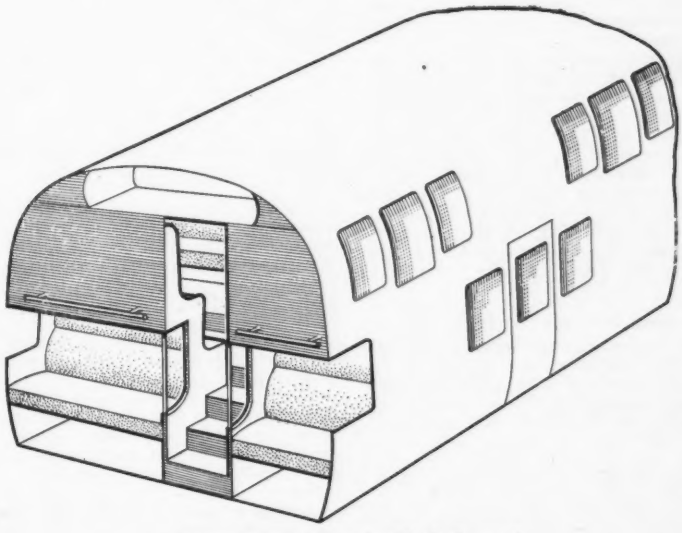
All-steel suburban stock of the type shown in the second illustration had been built for some time. The roof was prefabricated as one unit, as were the body sections between the doorways and ends; doors also were fabricated from pressings. The units were assembled in jigs and sections welded together and to the underframe.

This stock, by its design and form of construction, had made it possible to seat 12 passengers in each compartment instead of 10, and, in this way, had lessened to some extent, the over-crowding during rush hours. As, however, the overcrowding continued to be serious, it was proposed to increase the seating by adding two coaches to the eight-coach trains. The resulting longer trains would have necessitated lengthening platforms, altering signalling and the layout of certain junctions, and extensions to terminal stations involving very great capital expenditure.

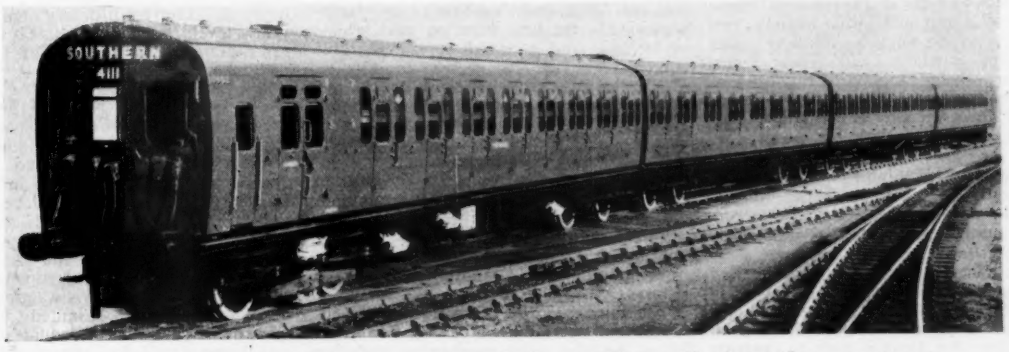
A quicker and easier solution would be to increase the seating of the stock, and, by skilful designing, it had been found practicable to provide double-deck stock within the restricted English loading gauge, by using the arrangement illustrated below.

The seating of each eight-coach train would be increased from 840 to 1,016—as large a number as could be handled conveniently in one train, and this increase in number would involve no increase in the length of the train, nor in its tare weight.

RAILWAY STUDENTS' ASSOCIATION.—Visits to the Post Office (London) Railway will be made by the Railway Students' Association, London School of Economics & Political Science, on November 17 and 24, at 6 p.m.



Arrangement for a double-deck coach



Southern Region all-steel four-car set for suburban working with six-a-side compartments

Improving Railway Workshop Efficiency in Ireland

Mr. H. J. Guthrie on engineering developments

The policy of Coras Iompair Eireann regarding rail traction was discussed by Mr. H. J. Guthrie, Signal & Electrical Engineer, C.I.E., in his inaugural address as Chairman of the Irish branch of the Institution of Electrical Engineers.

Mr. Guthrie said that, since the inception of Coras Iompair Eireann on January 1, 1945, many large schemes had been embarked on to rejuvenate the transport organisation, improve its general efficiency, and provide additional and new manufacturing processes in the engineering workshops.

In these developments electrical engineering was playing an increasingly important part. Some of its applications were new to this country, but, unfortunately, fruition of many projects was being delayed by lack of raw materials and other supplies. Possibly the most outstanding of such developments, is the use of diesel-electric locomotives.

Regarding engineering works development, some indication of its extent could be gathered from the position at the Inchicore works—the largest in the State—where the present load of 800 kW. for an installed electric plant capacity of 2,000 kW. was to be increased within the next five years to a load figure approximating 6,000 kW., nearly an 800 per cent. increase. This would mean a complete re-arrangement of the power supply position.

This expansion has been brought about principally by new works. For instance, a large plant for the manufacture of diesel engines for road vehicles was under construction, entailing extensive power and lighting installations, all of the work being carried out by the electrical staff. To provide the required flexibility of layout the method of enclosed busbar distribution throughout each machine bay was to be employed. Lighting would be an equal mixture of mercury vapour and tungsten lamps.

Modernisation at Inchicore

The present machine shops at Inchicore, said Mr. Guthrie, are in process of modernisation and much has been accomplished already. The new machine tools are each self-contained, with independent drive, not only for the machines themselves, but in many cases for the independent motions of the machine. A powerful industrial X-ray plant has been installed in the works laboratory, capable of taking radiographs through 3½ in. of steel or 12 in. of aluminium.

In addition to the large collection of d.c. welders already in existence at Inchicore, new equipment will include two transformer-type welders totalling over 4,000 amps. capacity, and power factor correction is being applied to this installation in the form of large condensers totalling 75 kVA. Another relatively new electrical process planned is an electric arc furnace for the heat treatment of steels, etc., together with high-frequency induction furnace for other processes. Similar large-scale works expansion and construction is authorised for the road vehicle workshops at Broadstone.

On the lighter current side the authorised and planned development is principally in the sphere of railway communications. For instance, a telephone traffic control scheme for the Dublin area is nearing completion, whereby considerably improved operating control facilities will be provided. It is also intended, as soon as arrangements are settled, to interconnect with teleprinters the divisional headquarters at Dublin, Cork, Limerick, Waterford, and Athlone, using multi-channel carrier telephone circuits. This network will provide the backbone of a more comprehensive telephone and teleprinter network planned for the future.

In addition to the large general telecommunication system, the considerable number of intercommunicating telephone systems in large depots, works and office blocks are being improved and extended. The policy is to dispense with manually operated switchboards and provide private automatic telephone installations to eliminate the variable human element.

The use of short-wave portable radio communication equipment offers many advantages to certain aspects of railway operation and maintenance, particularly under concentrated or exceptional working conditions, and, although the use of such equipment cannot be foreseen in the near future under the conditions obtaining in our railway system, application has been made for the allocation of suitable wavelengths.

The lighting of many stations, goods depots, and shunting yards, is admittedly poor by modern standards, and to remedy the matter is rather a formidable job apart from economic considerations, but a progressive policy is being followed, and much work towards improved lighting is in hand. By using various forms of vapour-filled electric discharge lamps, which are relatively economic where long burning hours are concerned, improved lighting is being provided without undue cost.

Sodium vapour floodlights have been applied successfully for some yard lighting, but their application on the railway is limited, because of their colour characteristic which clashes with signal lights. For goods stores, workshops, goods yards, etc., it has been found that the high-pressure mercury vapour fluorescent discharge lamp is a satisfactory and economic proposition.

Most of our stations, however, are relatively small, and it is at these stations that improved lighting is mostly required, and is being applied, but there is little scope for anything beyond tungsten lamp schemes.

A large proportion of the remaining oil-gas coaches soon will be converted to electric lighting, using the orthodox arrangement, but on an experimental stainless-steel coach which the company had this year, tubular fluorescent lamps were used—the first time on any vehicle in Ireland—and received very favourable comment. The current used is 110 V., 400 cycle, a.c., provided by a d.c. motor-alternator driven off the 24-V. train lighting battery. Unfortunately, gain in lamp efficiency is nearly almost offset by the additional motor alternator losses, and investigation has shown that at the present stage of development, and with the conditions prevailing here, there is no justification for the adoption of this form of lighting as a standard method for new train lighting work, except perhaps for luxury trains.

The business of C.I.E. railways also involves the operation of certain ports and quays, together with mechanical handling equipment which is composed principally of electric cranes or electrically-driven hydraulic pumping plants feeding hydraulic cranes and capstans. Development lies, usually, in the direction of additional electric cranes, and at Waterford a large-scale quay reconstruction is in process, together with the provision of three of the most modern 3-ton level luffing portal-type electric cranes, with the possibility of the acquisition of a 20-ton model later.

Goods Handling at Depots

For goods handling at the large depots, mechanisation is being applied wherever it is economically possible, which usually means electrification to a considerable degree. During the past twelve months, mobile electric cranes have been used on our railways for the first time, and more are on order. These versatile machines, comprising essentially a petrol or diesel-electric generating set feeding the three motored motions, are extraordinarily effective and efficient, and exemplify the advantages of electrical transmission and control methods. Electrically-driven conveyors also will shortly make their first appearance in our principal goods depots.

Hurst, Nelson & Co. Ltd.

The annual general meeting of Hurst, Nelson & Co. Ltd. was held in Glasgow on October 21, Lt.-Colonel Arthur N. Forman, Chairman, presiding.

The Chairman intimated that important events which had taken place during the year had caused him to regard it as desirable that he should publish his statement this year with the accounts.

Private ownership of wagons, a service which had been beneficial to the industry and trade of the country in the past, had been terminated by the Transport Act, 1947, in consequence of which the wagons, owned at the passing of the Act by the subsidiary of the company, had become the property of the Government on January 1, 1948. As a result, their subsidiary company was now in process of liquidation, which it was anticipated would be completed, subject to settlement of outstanding questions during the present financial period, and on winding up the proceeds of liquidation would pass to the company.

In view of the termination of private ownership, the extensive holding in Wagon Repairs Limited, which had been acquired and maintained because of the company's interest in wagons, was reduced further by the sale of shares at beneficial prices.

These realisations had been accompanied unavoidably by a fall in trading and investment revenue, but full use of manufacturing assets had lessened this effect, enabling the directors to recommend dividend on ordinary shares at last year's level, transfer of £10,000 to general reserve and carry forward of £64,675 to next year.

Distribution of Capital Profits

From capital profits which had accrued from sale of shares in Wagon Repairs Limited, it was proposed to distribute 7s. 6d. per £1 ordinary share in cash, and transfer £9,500 to employees' benefit fund and £50,000 to a dividend equalisation fund for ordinary shares.

Referring further to the funds which had accumulated from compensation received for the company's wagons and sale of Wagon Repairs Limited shares, the Chairman said that adequate provision was being made for expansion, development and maintenance of the company's

manufacturing facilities and assets, and that the directors were considering carefully how best to apply the surplus thereafter remaining.

He ended his remarks with an expression of appreciation of the service of the directors, executives, and employees at all levels.

The report was adopted.

Railway Improvements on Tyneside

Sir Cyril Hurcomb, Chairman of the British Transport Commission, accompanied by Major-General G. N. Russell, Chairman of the Road Transport Executive, Mr. J. C. L. Train, Member of the Railway Executive, and Mr. J. H. Brebner, Chief Public Relations & Publicity Officer, B.T.C., inspected the North Tyneside electric lines of British Railways, North Eastern Region, on November 11.

In the course of his visit Sir Cyril Hurcomb said that important renewal works and improvements on the Tyneside electric lines are now in hand. The high-tension and low-tension switchgear in the sub-stations is being renewed, and the track section switching stations at all important points are being replaced by track sectioning cabins equipped with high-speed circuit breakers operated by remote control. A new centrally controlled station is to be erected at Manors Junction and remote control installed at seven sub-stations. Improvements to layout are to be made to the car sheds at Gosforth.

These proposals are estimated to cost more than £200,000, and will be carried out in stages, the first stage, involving an expenditure of over £60,000, being now in course of completion.

Sir Cyril Hurcomb also announced that at Newcastle Central Station an expenditure of £331,000 had been authorised on three big schemes on which work is now being carried out. The first of these is the replacement of the electro-pneumatic signalling installation in the Central Station area by modern equipment, incorporating the latest types of signalling and train describer equipment, with colour-light signals and complete track circuiting. The movements now controlled from four signal boxes will be regulated from one central box. The estimated cost is £316,000.

A sum of £11,000 is now being spent on improvements to the refreshment room, where the present dining room and first class bar are to be converted into a cafeteria and bar, and the existing second class bar into a separate dining room with suitable kitchen accommodation and facilities for servicing platform trolleys.

In the East End booking office at Newcastle Central Station, the two existing ticket issuing machines are to be replaced by two 25-way machines and two six-way machines of modern type, which will facilitate the handling of coastal traffic. The cost of this new equipment will be £4,000.

ELECTRIFICATION IN JUGOSLAVIA.—The Zagreb-Rijeka (formerly Fiume) line (142·2 miles) and the Ljubljana-Rakek line (34·2 miles) are to be electrified by 1951. The extension of the latter line to Trieste and beyond was electrified by the Italian State Railways in 1939. Electric traction in 1951 will absorb less than 3 per cent. of Jugoslavia's total production of electric power (4,350,000,000 kWh.) for that year.

North Eastern Region Debating Societies

The first meeting of the 1948-49 session of the Federation of Railway Lecture & Debating Societies, North Eastern Region, was held in the Railway Institute, York, on Tuesday, October 19, when nearly 350 members from all parts of the Region heard an address by Sir Cyril Hurcomb, Chairman of the British Transport Commission, on: "The Organisation of British Transport."

On this occasion, members of the debating societies in the Region were able to welcome Mr. Miles Beevor, Chief Secretary & Legal Adviser to the British Transport Commission, who is President of the Federation and who took the Chair at the meeting, and Mr. C. P. Hopkins, Chief Regional Officer, North Eastern Region. Following the address, Sir Cyril Hurcomb answered questions from the body of the hall and at the close of the proceedings, a vote of thanks to the speaker and the Chairman, proposed by Mr. Hopkins, was carried with enthusiasm.

After the meeting officials of the six societies constituting the Federation were introduced by the Chief Regional Officer to Sir Cyril Hurcomb and Mr. Beevor at an informal function.

The next meeting of the Federation will be held at Darlington, on Tuesday, December 14, when representatives of the constituent societies will debate the motion: "That rail transport should be confined to long distance and large bulk traffic (freight and passenger), leaving short distance traffic to be entirely covered by road."

International Railway Transport Problems

The problems connected with the modifications to be introduced in the International Conventions of Berne relating to the transport of passengers and goods were discussed recently at a meeting of the Railway Transport Committee of the International Chamber of Commerce at Paris. The meeting was presided over by Brig.-General Sir Osborne Mance, and prominent among the French members were MM. Charles Boyaux, Assistant General Manager, French National Railways, and René Bourgeois, Chief of the Central Commercial Division and Commercial Publicity, French National Railways.

The Conventions are to be revised in 1949, and the International Chamber of Commerce had been asked to make known its suggestions in this connection to the interested Governments. Wishing to protect the interests of the railway users represented by the Chamber it suggested that it should be entitled to co-operate in the revision not only by means of written reports but also have a consultative voice.

The meeting dealt also with the problem of the status of privately-owned wagons (either individual owners or companies). Before the war privately-owned wagons totalled more than 33,000 in France, and numbered 4,500 in Czechoslovakia, 41,000 in Germany, 8,000 in Italy, 6,500 in Poland, and 9,000 in Roumania. The Committee estimated that the most convenient way to bring about a modification of the status governing privately-owned wagons was to associate the interested parties—railway administrations, owners and users—with the International Chamber of Commerce to join forces to work out the new regulations.

Finally, the Committee took note of a report on the participation of the International Chamber of Commerce in the work, as far as transport was concerned, evolved by various working groups of the European Economic Commission of the United Nations. It is believed that a measure of active collaboration has been established between the International Chamber of Commerce, a non-Governmental body, and the Government delegates acting in the various organisations of the United Nations.

Self-Cleaning Paint

The development of a self-cleaning paint by technicians of British Railways, London Midland Region, Scientific Research Department, was given brief reference in our September 24 issue, when it was announced that the paint was being used on signal posts.

Experience has shown that white, or black and white, signal posts increase the ease with which signals may be located by drivers, and it is self-evident that to have significant value as a safety factor, the visibility of individual posts must remain constant and they must not change rapidly in this respect as a result of discoloration of the paint, or the accumulation of an obscuring film of dirt. It is obvious that in railway situations, the difficulties of maintaining the posts in a good white condition are great, and it would appear at first sight that this could be done only by frequent cleaning or repainting. Consequently, it was decided to develop a paint which would not discolour and would be self-cleaning.

To appreciate the way in which this has been achieved, it is necessary to consider the behaviour of normal paint, and in particular, the characteristic failures shown. The failure may, for example, take the form of deep cracks which, exposing the basic material to which it is applied, leads to corrosion, or it may fail by loss of adhesion and the flaking away of the paint; again, the failure may arise from complete disintegration of the film, with the formation of a powdery residue which may be rubbed off with the fingers, or washed away by rain. It is a characteristic of this last "chalking" failure, that the action of the rain is to wash away the surface of the paint, and expose a new one, until the paint film has entirely disappeared.

It is by making use of this type of paint failure, that the self-cleaning type of paint has been developed. A paint was sought which, though possessing good durability, exhibited to a controlled degree, the "chalking" characteristic, which would secure the desired self-cleaning property. Other properties regarded as essential in this paint were high opacity, which would permit a minimum number of coats to be used (often only one); good integral colour retention; good gloss and surface hardness to ensure that during the initial period, before chalking commenced, the paint had a high degree of dirt resistance.

The paint component which largely determines the form of failure shown by the finished product is the pigment, and a modern white pigment known pre-eminently to predispose a paint to chalking is titanium dioxide. As this pigment has the property of affording a maximum degree of opacity and colour retention to the paint, it was an obvious choice for the self-cleaning paint. The problem which remained, was that of giving the balanced degree of chalking and durability; this was achieved by incorporating a pigment that,

unlike white lead, does not discolour under railway conditions, nor, like lithopone, reduce durability. The choice of media is equally important, and in making the choice, advantage was taken of the knowledge and experience which had been gained in the London Midland Region Paint Research Laboratory.

Railway Wage Claims in Eire

Mr. M. J. Hayes, one of the C.I.E.'s advocates, when applying to the Joint Industrial Council in Dublin for adjournment of the hearing of applications for increased rates of pay and improved conditions of service for about 12,000 railwaymen, indicated that Coras Iompair Eireann was not in a position to meet the demands made on it by the unions. Mr. Hayes said the whole future of Irish railways was now in the melting-pot, and the hearing should be adjourned until the report of Sir James Milne, now conducting an inquiry into the affairs of the company, was available.

The Council, which consists of an equal number of representatives of the company and of the railway unions, with an independent Chairman, decided by a majority to hear the applications.

Mr. J. F. Campbell, representing the N.U.R., pointed out that three other applications (from Road Passenger and Road Freight Sections) had been dealt with in the last three months. He said the N.U.R. application sought to improve the wage rates of about 7,800 adult workers and 280 juniors. The company had rejected the claim in September, one of the grounds being that up to that date it had lost £792,000 this year. The wage level of N.U.R. members was, in almost every case, below that of the industry in general. The union believed the company's losses were due, not so much to falling off of traffic, as to lack of co-ordination of services.

The company had continuously pursued a policy of low fares, in many instances lower than in 1939. While that policy was laudable in normal times, regard must be had to the movements of costs other than wages. A wage structure giving as little as 74s. for a week of 48 hours, and where the maximum for a highly-skilled engine driver was 129s.—the highest rate paid in that group—could not be called equitable. The argument of financial losses could not be sustained when, earlier this year, the company had accepted a recommendation of the Labour Court in respect of 3,060 adult shopmen for wage increases of from 10s. to 11s. 9d. per week; also, the Labour Court had recently made other recommendations for increases, which there was no reason to doubt would be also accepted.

In reply to Mr. F. Lemass (General Manager, C.I.E.; member of the Council), Mr. Campbell said he was not aware that the company had had an application in since February last for an increase in rates and fares.

Mr. T. Burns, A.S.L.E.F., Mr. M. Macken, Irish Railwaymen's Union, and Senator J. T. O'Farrell, R.C.A., when putting forward the claims for their own members, supported Mr. Campbell's general contention. Senator O'Farrell declared that railway clerical employment was now definitely black-listed as being sweated. Secondary schools were discouraging their students against a railway career.

Mr. Hayes, replying for C.I.E., said that the rail section of the company's undertaking had sustained a net loss of £412,704 in 1946 and in 1947 the loss had been £972,355 on that section. From January 1 until October 10 this year, the company had lost on its railways £904,401, and it was estimated that the loss on the year's working would be not less than £1,300,000. From January to October this year, the loss on the entire undertaking of the company amounted to £807,910.

The present demands would cost an additional £427,000 and could not possibly be met by increasing the rates and fares, and so would have to come from financial resources other than those produced by railway working. Otherwise they would have to come from economies in expenditure and working. The company's resources were completely exhausted by the working losses of the past, and the last cash reserves available to the company would, it was anticipated, be spent by the end of this year. With the improvement in the motor fuel position and the increasing availability of motor vehicles, the company was faced with serious and increasing competition. Labour costs represented 13s. 4½d. of every £1 expenditure. To meet the present wage claim and yield the amount of the deficit, it would be necessary to increase the rates and fares by something over 40 per cent., but any further increase would lead to greater diversion of traffic to the private car and lorry.

The Chairman announced subsequently that the Council had, by a majority, recommended the following wage and salary increases:—6s. per week to wages grades; 4s. per week to female clerical staff; 3s. per week to juniors; £15 12s. per annum to salary grades; junior cleaners who have performed 313 firing turns to receive the full increase of 6s. The Council recommended these increases to take effect from the commencement of the first full pay period in September. It also recommended by a majority that the position be reviewed after consideration of the Milne report. It made no recommendation at present in relation to the remainder of the application of the A.S.L.E.F.

Parliamentary Notes

Railway & Canal Commission (Abolition) Bill

The Lord Chancellor presented to the House of Lords on October 27 the Railway & Canal Commission (Abolition) Bill. Its object is to abolish the Railway & Canal Commission; to make provision for the future exercise of the performance of its functions; to amend and repeal certain enactments relating to its functions; and for purposes connected with the matters aforesaid. The Bill was read the first time.

Railway Nationalisation Results

Mr. R. S. Hudson (Southport—C.) moving on November 2, in the House of Commons, the Official Opposition amendment to the motion for an address in reply to the King's speech on the opening of Parliament, said they had not yet heard the result of the first year's working of the nationalisation of railways but, if reports were true, current revenues were insufficient to meet current operating costs, quite apart from any sums required to pay interest on the moneys borrowed from the Chancellor of the Exchequer.

Dr. Hugh Dalton (Chancellor of the Duchy of Lancaster) said the railways passed into public ownership on January 1, 1948. Therefore, the first full year was not yet complete, for which accounts would be published as soon as they were received. But he asserted that there had been no increased burden on users of railways since nationalisation. There had been no increase in fares, or rates, or charges on British Railways since they came into existence. No one was going to deny that, but it was not always remembered. The last increase in railway fares and rates was on October 1, 1947, when the railways were still in private hands.

Mr. Brendan Bracken (Bournemouth—C.): Ordered by the Minister of Transport.

Dr. Dalton said even so, the increase resulted only in establishing a level of 55 per cent. above the pre-war level for fares, for both passenger fares and freight rates for goods. That increase he regarded, as very moderate indeed, having regard to the increases that had taken place in other prices. It was difficult to get an exact parallel because the cost of living was not an exact parallel, due to food subsidies and other things too. The nearest parallel he could get was this. The present level was 55 per cent. above that of pre-war for the railways, and the wholesale price index showed an increase of 118 per cent. —more than twice above the pre-war level. Therefore, they could well say that their railway services, both for passengers and goods, were relatively cheap as prices went in these days.

Mr. Anthony Eden (Warwick and Leamington—C.): Pretty good for a "rotten bag of assets."

Dr. Dalton said Mr. Eden had recalled a phrase of his—"a pretty poor bag of assets." They were improving them. He saw a number of Conservative members wrote to *The Times* complaining about their meals on the trains, but we were, on the whole, being reasonably well fed in these hard times.

Mr. Bracken: What about the replacement of rolling stock and permanent way?

Dr. Dalton said they were improving them. The Minister of Transport was doing everything he could to assist in the improvement of all the rolling stock and of the permanent way. There were a great number of wagons that had been worn out by the strain of wartime usage, because there was for a time no replacement. They were now being steadily replaced in the nationalised railway shops, where the men were working exceedingly well. There was a quicker turn-round of rolling stock than there was before. As to road transport, it was yet too early to report. Road transport was only just beginning to be organised within the new framework.

Mr. R. S. Hudson: But what of my question about the operating revenues of the railways We do not have to wait until the end of the year for that information. We must know currently how they are going. I asked whether the operating revenues were covering operating costs, apart from the money required for interest.

Dr. Dalton said that figures were published from time to time about that, but he thought it would be better, rather than to give a partial view in the eleventh month of the year, to wait until they could see the picture as a whole, and then it would be open to debate and comment everywhere. Turning from railways to road transport, he said that was only in process of being built up as a socialised service, but there was now a nucleus of large road transport firms on which the new structure of unified long distance road transport would be developed. The Minister of Transport was to be congratulated on the way in which he was succeeding by voluntary agreement in getting that nucleus organised for the new road service.

Mr. J. Haworth (Liverpool, Walton—Lab.), who is an ex-railwayman, said a great many of their people were disap-

pointed that they had not been given a greater share in the control of the railway industry. There was a great demand on the part of the workers in various industries, particularly those brought forward for nationalisation, to be given a greater share in the control of industry. He believed there was a genuine attempt on the part of Sir Cyril Hurcomb, Chairman of the Transport Commission, and members of the Commission and members of the Railway Executive Committee to try to bring the workers in that industry into consultation. In the old days he was present at meetings of the Railway Staff Conference and of the General Managers' Conference. He also had been present at nearly all the meetings of the new Executive Staff Committee and he saw a great improvement indeed. There was a new spirit abroad, and as far as they were concerned, they believed that nationalisation had meant a tremendous change for the workers in the industry. They had not solved all their problems by any means, but they were on the right way. Because of having nationalisation they could bring in a spirit of co-operation to a far greater extent than they could before nationalisation. On the question of the control of the House of Commons over the new industries, he said he felt a great deal of perturbation at the way they were setting up public corporations without any direct control by Parliament. Under private enterprise there was the board of directors and the shareholders' meeting once a year. That was at any rate some form of control. They were abolishing the board of directors and were setting up a public corporation, but they were not going to have an equivalent board of directors, which was the House of Commons. In the ultimate, the corporation must be controlled by the House. If Members met with a refusal from the Speaker when they put down a question on the working of the various public corporations, he failed to see where any control whatsoever was being exercised. That was a very great danger and there was a need for some way whereby democracy would be able to exercise its control. The exercising of that control needed a live ministerial person and it also needed a live House of Commons. It was up to them to see that a measure of control was exercised.

Mr. Brendan Bracken (Bournemouth—C.) speaking in the resumed debate on November 3, said that so far as he could discover, the only way the Transport Commission could remain solvent was to raise prices against the helpless consumer. Despite heavy increases in fares and rates, nationalised transport, judged by the ordinary accounting standards, was a big loser, and would continue to be so. The unfortunate Transport Commission was struggling against heavy losses on the railways. The Commission had reserves of power to increase charges, but they were sensible men, and, therefore, they did not wish to order increases, for they knew that the sales resistance of the public to increased railway charges would accentuate falling traffics. The previous day he read a speech by Sir Eustace Missenden, Chairman of the Railway Executive. It was an excellent speech, but it was tinged with great pessimism, and, in a certain sense, the speech was defeatist, because he proposed to close down many railway services and provide, later on, road transport services to take their place. A policy of despair was really not much help in our present circumstances. Why did not Sir Eustace Missenden and his masters in the Government follow the example of American railroads faced with similar problems. They had proved that the best way to strengthen turnover was to increase speed, slash costs, and offer new and attractive services to travellers and traders. It was quite remarkable to see the progress of certain American railways from bankruptcy to prosperity, through the recognition by their Presidents and directors that salesmanship was essential to transport. Ministers must remember that transport was one of the most important industries in the country, and it required daring and imaginative management. Among the many worthy gentlemen who had been appointed to the various Boards the Minister seemed to have a special preference for what he might call "The good old men." If they wanted to put a nationalised industry in order, they must find young fellows with fire in their bellies. Apart from changing the ownership of the railways and slowly absorbing road transport, the Government had never condescended to give the House any information about their transport policy. If railway rates were to continue to increase, a most heavy blow would be struck against our export trade, and Ministers could not hope to fulfil their targets if more effort was not made to reduce the cost of transport.

Mr. Herbert Morrison (Lord President of the Council) said the percentage increase in fares after this war, broadly, had been less than the percentage increase in fares and charges under private enterprise after the first world war. Against that it might be alleged, "Well, but the railways at the moment are not paying," as to which he made no observation, because the accounts were not yet out. If that be the answer, and it was said, "If the railways are to be made to pay, you will have to put the fares up," that was a point about which one had to be careful, because there was a limit to what the traffic would bear. But if it was being argued that the railways in present circumstances under Socialism, were losing money, let him remind the House that, according to Command Paper 815 on railway working, the deficit under private enterprise for the financial year 1919 to 1920, the year after the end of the first world war, was £41 million. The estimated deficiency for 1920-21 was £52 million. In both cases liability was falling on the Exchequer. Opposition members might disagree with socialisation, and they might disagree with public ownership, but they ought to pay respect to the men in charge of the industries. By all means criticise them if there was something concrete about which to criticise, but those men ought not to be abused, as they sometimes were.

ADDITIONAL FREIGHT RATE INCREASES SOUGHT BY AMERICAN RAILWAYS.—The United States railways are to ask the Interstate Commerce Commission for an additional 5 per cent. increase in freight rates, bringing the total amount of freight rate relief sought to 13 per cent. The Commission already has before it an application for freight increases equal to 8 per cent. on the present levels. A major factor in the requested rate adjustment is the $55,000,000 annual rise in wages which the railways agreed early in October to pay 175,000 of their operating workers. If all the 1,400,000 railway workers accept a similar increase, the additional cost to the railways will be equivalent to a 5 per cent. rise in freight rates.

Questions in Parliament

Elderly Workers on Railways

Mr. Ian Mikardo (Reading—Lab.) on November 1 asked the Minister of Transport, in view of the broadcast appeals for older people to stay at work, why the Railway Executive (Western Region) was dispensing with the services of older men who were still fit for useful work.

Mr. Alfred Barnes stated in a written answer: Questions of employment of railwaymen are primarily matters for the British Transport Commission, which is aware of the Government's policy in this matter. If Mr. Mikardo has any particular case in mind, I suggest he should communicate with the Commission.

Sales of Machine Tools

Colonel O. E. Crosthwaite-Eyre (New Forest & Christchurch—C.) on November 1 asked the Minister of Supply what machine tools had been offered for sale by his Ministry since April 1, 1948; to whom such sales had been made; and what precautions he had taken to ensure that such sales were in the national interest.

Mr. George Strauss (Minister of Supply) stated in a writen answer: Since April 1, 1948, 13,325 machine tools of all descriptions have been sold. It would not be possible without an undue expenditure of time and labour to give full details of the tools and buyers, but I give below the available information. No machine tool is sold if it is required as a reserve or for other Government purposes. Very few have been exported and the export of tools specifically designed for munition making is controlled by the Export of Goods (Control) (Amendment No. 3) Order, 1948.

Following is the information:—

ANALYSIS OF SALES OF MACHINE TOOLS FROM APRIL 1 TO SEPTEMBER 30, 1948

The following is a breakdown of the machines sold :—

Government departments	788
Allies	630
Trade	4,897
Export (private buyers)	91
Local authorities	74
Holding contractors	5,044
Auction	1,801
Total	13,325

Exports (other than private traders) :—

Under financial agreement :—

To the Polish Government—		
Normal sales	224	
Auction	249	
Total	473	
To the Netherlands Government—		
Normal sales	366	
Auction	5	
Total	371	

On repayment :—

To the Pakistan Government—		
Normal sales	35	
Auction	Nil	
Total	35	

AUCTIONS TO SEPTEMBER 15

Place of sale	Number of machines sold	Sold to Polish Government	Sold to Netherlands Government
Leeds	165	32	—
Cambridge ...	336	24	—
Windermere ...	405	127	—
Nottingham ...	448	28	5
Birmingham ...	447	38	—
Total ...	1,801	249	5

Major Guy Lloyd (East Renfrew—C.) on November 1 asked the Minister of Supply whether, in view of the international situation, the auction sales of surplus machine tools were to be stopped.

Mr. George Strauss, in a written answer, stated: No, sir; for the reasons I have given to Colonel Crosthwaite-Eyre.

Notes and News

Works Manager Required.—A Works Manager, between 35 and 45 years of age, is required by a firm of rolling stock manufacturers in South Yorkshire. See Official Notices on page 563.

The Institution of Locomotive Engineers.—Applications are invited for the appointment of a secretary and treasurer of the Institution of Locomotive Engineers. Candidates should be under 50 years of age, and corporate members of the Institution of Civil, Mechanical or Electrical Engineers. See Official Notices on page 563.

Rail Travel to Pwllheli Holiday Camp.—During the summer, some 41,000 passengers, or over 18,000 more than last season, travelled by rail to and from the Western Region station at Penychain, North Wales; they were mainly visitors to the Pwllheli holiday camp. In addition, luggage in advance dealt with at the station increased by about a thousand packages.

Western Region Dramatic Society.—Twenty members of British Railways, Western Region, headquarters staff at Paddington will take part in a production of Daphne Du Maurier's play "Rebecca" by the G.W.R. (London) Dramatic Society at the Park Theatre, Hanwell, on Friday and Saturday, November 12 and 13, and at the Fortune Theatre, Drury Lane, on Tuesday, November 16. The producer is Mr. Percy Grumbridge, formerly of the G.W.R., and now at the Railway Executive headquarters, who has produced all forty-six plays that the society has performed since it was founded in 1922.

Railway Memorial Plaque Unveiled.—A service of remembrance and dedication, conducted by the Reverend J. Westlake, Vicar of Old St. Pancras Church, took place at British Railways (London Midland Region) Camden Goods Depot recently, when a memorial plaque, erected by the London Midland Region Accounts Office Staff, was unveiled by Mr. E. S. Hunt, London District Goods Manager.

Liverpool Overhead Railway Traffics.—At October 31, further increases in weekly traffics had brought Liverpool Overhead total receipts for the year back to £169 below 1947, at £123,682; this compares with the position at September 28, when aggregate traffics were £1,041 below last year. In the week ended October 24, receipts were £2,934 and were up by £303, and in the week closing October 31 advanced by £91 to £2,720.

Adoption of Automatic Couplings Urged.—Measures designed to accelerate the general introduction of automatic coupling on all railways in Europe were recommended by the Committee for Inland Traffic of the European Economic Commission at one of its meetings at the end of October. M. Raphael Cottier, head of the Swiss Delegation, and chief of the Federal Office for Traffic, proposed that standard types of chassis and coupling gear should be evolved by 1950, so that Governments and railway administrations might proceed after that year with the organisation of the materials and labour required for the conversion, as well as with the financial measures necessitated.

Locomotive Film Show in Glasgow.—In the paragraph in our October 29 issue concerning a joint meeting of the Institution of Locomotive Engineers and branch chairmen and secretaries of the railway mutual improvement organisation for a film show of locomotive interest in Glasgow on October 14, it was incorrectly stated that Mr. R. F. Harvey, Scottish Region Motive Power Superintendent, presided. In fact, Mr. R. P. Critchley, Chairman of the Scottish Centre of the Institution, occupied the chair at the meeting, which was arranged by Mr. P. G. Lamont, in collaboration with Mr. S. T. Clayton, with the approval of Mr. Harvey. Mr. T. F. Cameron, Chief Regional Officer, had hoped to attend, but was unable to do so.

London Transport Players. — The London Transport Musical & Dramatic Society gave the first of three performances of the well-known musical comedy "The Desert Song," on November 4, at the Scala theatre. The show, produced by Mr. Cyril Corker and under the musical direction of Mr. Horace A. Warton, was well up to the usual high standard set by this society and the quality of the production was both lively and polished. Mr. Ivor Parker and Miss Adeline Sealy in the leading rôles, as well as the other principals of the cast and the chorus, gave notable performances.

British Railways Exhibit at Schoolboys' Exhibition.—When the Schoolboys' Own Exhibition opens at New Horticultural Hall on January 1, for fifteen days, British Railways will provide an electrically-operated gauge O model railway, consisting of 500 ft. of track laid with flat-bottom rails. The layout will include main running lines and carriage sidings, as well as a locomotive shed, station, goods depot, bridges, and lineside fittings. A fleet of scale models will include examples of express trains running in each region, a new express diesel of the 10,000 class, and a shunting diesel. Representatives of British Railways will attend the stand to give advice and assistance to young men who are thinking of making their careers with that organisation.

Waste Paper Salvage Contest.—More than 1,000 local authorities have entered for the second waste paper recovery contest which is being held by the Waste Paper Recovery Association from October to March. Though most of the entries are from councils which took part in the first contest—held in the Spring of this year—there are new competitors as well. Meanwhile the stimulus given to paper salvage by the Spring contest is still being demonstrated by increased revenue from the sales of paper throughout the country. Paper salvage from March to May brought local authorities £555,253, or £215,624 more than for the same period last year. While collections of paper are still falling short of national needs, there is a continued average of 2,000 tons a week above those for 1947.

McNamara & Co. Ltd. Sale.—The directors of McNamara & Co. Ltd., Royal Mail and road transport contractors, have announced that a formal contract has been executed for the sale of the undertaking to the British Transport Commission. The Commission takes over the business as from July 1 last. Subject to unforeseen circumstances, the directors are of the opinion that the net result will permit of a distribution to the stockholders in cash, of approximately 33s. per stock unit of 12s. This is the price mentioned by the Board last August when it was announced that the offer by the Transport Commission had been accepted. The fixed assets and goodwill are covered by the main purchase price payable under the contract, but liquid assets such as cash, book debts, tax reserve certificates, and so on, as at July 1 last, are retained by the company and the company will discharge its liabilities as at July 1 last. The consideration is payable in cash and interest runs at 3 per cent. a year from July 1 last. With the exception of the commercial managers, the staff of the com-

Railway Memorial Plaque Unveiled

Mr. E. S. Hunt, London District Goods Manager, with the Reverend J. Westlake, after the unveiling of a plaque in memory of members of the London Midland Region Accounts Office Staff who fell in the recent war (see paragraph above)

OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

IMMEDIATE delivery unused Sentinel B.E. type Industrial Steam Locomotive, 100 h.p., standard gauge.—Write Box 664, DORLAND ADVERTISING, 18/20, Regent Street, S.W.1.

DRAUGHTSMEN, senior, with technical training and general engineering experience. Apply by letter giving full details.—BRITISH TIMKEN LIMITED, Cheston Road, Aston, Birmingham.

SENIOR DRAUGHTSMEN required with railway locomotive or carriage experience. Apply by letter giving full details.—BRITISH TIMKEN LIMITED, Cheston Road, Aston, Birmingham.

A DIESEL Electric Rail Traction Sales Engineer is required by a large Midland Engineering concern. Salary up to £700 per annum, according to qualifications and experience. Reply age, etc., to Box 474, T. & G., 101, St. Martin's Lane, London, W.C.2.

TRAFFIC CONTROL ON THE L.M.S.R. Co-ordination of operating arrangements as a result of grouping.—Central, Divisional, and District Control—Outline of unified methods adopted—Organisation and working—Control telephone circuits—Daily telephonic conferences. Paper. 12 in. by 9 in. 20 pp. Illustrated. 5s. *By post* 5s. 2d.

THE INSTITUTION OF LOCOMOTIVE ENGINEERS

APPLICATIONS are invited for the appointment of Secretary and Treasurer of the Institution of Locomotive Engineers and, after a period of service, to undertake the additional duty of Editorship of the Journal.

Qualifications: Under 50 years of age, a Corporate Member of the Institutions of Civil, or Mechanical or Electrical Engineers, with mechanical engineering experience on a British or Overseas Railway. Knowledge of Accounting and Publishing would be advantageous. Salary £800 per annum with addition of £200 per annum on subsequent appointment as Editor. The candidate appointed will be required to contribute to a Pension Scheme. Applications must reach the Offices of the Institution not later than February 1, 1949, addressed to: THE PRESIDENT OF THE INSTITUTION OF LOCOMOTIVE ENGINEERS, 28, Victoria Street, London, S.W.1, envelope to be marked "Appointment."

ENGINEERS' BENCH VICES: 4½-in. jaw, with hardened steel plates, quick release action, cast-steel construction. New and unused—delivery from stock. Special prices quoted for quantities.—Cox & DANKS LIMITED, Steel Dept., Broadheath, Near Manchester. 'Phone: Altrincham 3711/3.

THE RAILWAY SYSTEM OF JAMAICA. A general description of the system and its traffics, with an account of economic problems; the motive power used; and some features of operation. By H. R. Fox, B.Sc., M.Inst.C.E., General Manager, Jamaica Government Railway. Reprinted from *The Railway Gazette*, January 5 and 12, 1945. *Price* 1s. *Post free* 1s. 2d.

WORKS MANAGER required by an old-established firm of Rolling Stock Manufacturers in South Yorkshire, making all types of high-class rolling stock, etc. It is essential that the applicant be fully experienced in the construction of all modern steel car construction, a good disciplinarian, and fully experienced in shop management. Applicants desired between the ages of 35 and 45. The appointment is superannuable. Apply in confidence, giving full particulars, to Box 207, *The Railway Gazette*, 33, Tothill Street, Westminster, S.W.1.

BRITISH WORK ON PERSIAN RAILWAYS. The achievements and difficulties of the R.E. during the 13 months in which they laid the foundation for effective aid to Russia. Reprinted from *The Railway Gazette*, February 2 and 16, 1945. *Price* 1s. *Post free* 1s. 2d.

TRANSPORT ADMINISTRATION IN TROPICAL DEPENDENCIES. By George V. O. Bulkeley, C.B.E., M.I.Mech.E. With chapters on Finance, Accounting and Statistical Method. In collaboration with Ernest J. Smith, F.C.I.S., formerly Chief Accountant, Nigerian Government Railway. 190 pages Medium 8vo. Full cloth. *Price* 20s. *By post* 20s. 6d.

STANDARD MILITARY RAILWAY BRIDGES. By F. S. Bond. A description of the different types of bridges designed for rapid erection in the field by the Allied Forces, and of the various methods employed in such erection. 28 pages. 9 in. by 12 in.; fully illustrated. Paper cover, 5s. *By post* 5s. 2d.

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pany generally will enter the service of the purchasers. At an extraordinary general meeting to be held at Winchester House, E.C., on December 1, at 12.30 p.m., a resolution will be submitted for the voluntary winding-up of the company within three months and that £3,150 be paid to the directors as compensation for loss of office.

Newcomen Society.—The annual general meeting of the Newcomen Society for the Study of the History of Engineering & Technology was held on November 3, in the premises of the Iron & Steel Institute, Grosvenor Gardens, London. The 27th annual report of the Council showed that progress in membership had been maintained, and that the roll of membership at September 30 last totalled 342 *plus* 39 libraries. During the session, seven ordinary meetings had been held, and the Summer meeting was held in Norfolk, with headquarters at King's Lynn. The affiliated society in North America had made enormous strides and the ratification of 1,343 new members had been made during the year, bringing the total up to over 8,000. The society had been associated with the movement to acquire and preserve the Stephenson cottage at Wylam; with the Stephenson Centenary celebrations at Chesterfield; with the tercentenary of the birth of Denis Papin; and with the erection of a monument at the birthplace of Trevithick. Also, an exhibition entitled "The Industrial Revolution in Art, 1760-1851," had been arranged in London.

The Tilling Deal.—Thomas Tilling Limited has now announced that the agreement with the British Transport Commission for the acquisition by the Commission of the company's interests in passenger road transport and road haulage undertakings affected by the Transport Act, 1947, has been completed. The consideration for the transfer is £24,800,000, to be satisfied by an allotment of British Transport 3 per cent. Guaranteed Stock 1968/73 at 101 per cent., the Stock Exchange price on September 30 last. Interest at the rate of 3 per cent. per annum on the purchase price accrues as from January 1, 1948, and the profits from the transport interests from that date will pass to the Commission. Thomas Tilling Limited proposes to recommend to a meeting to be convened later, that on April 1, 1949, a capital distribution be made out of the amount received to holders of ordinary stock at the rate of £5 of British Transport 3 per cent. Guaranteed stock 1968/73 in respect of each £1 Stock held. Interest on this Stock up to that date will be received by the company. There will remain a balance of £3,954,455 of B.T. 3 per cent. stock which it is proposed to retain in the business with the intention of conversion and investment. The company will now be entirely an investment and holding company.

British Transport Commission Statistics.—The latest issue of *Transport Statistics*, published by the British Transport Commission, covers the four-week period to September 5, and we expect to deal with them in the usual tabular form, in an early issue.

Railway Freight Rebates.—The Transport Tribunal will sit at 10.30 a.m. on November 24 at Wellington House, 125-130, Strand, London, W.C.2, to review the operation of the Railway Freight Rebates Scheme for the year ended September 30, 1948. The Railway Executive, London Transport Executive and railway companies to which the Railway Freight Rebates Enactments, 1929-43, apply, have filed with the Tribunal an application that there shall be paid out of the Railway Freight Rebates Fund in respect of administrative expenses in respect of the period October 1, 1948, to September 30, 1949, a sum of £10,000, exclusive of any payment out of the fund authorised by the Minister of Transport under the provisions of sub-section (3) of section 2 of the Railway Freight Rebates Act, 1936. This application will also be heard at the above mentioned time and place. It is notified in *The London Gazette* that the Railway Executive, London Transport Executive and any railway company to which the Enactments apply, or any interested representative body of traders, desirous of being heard before the Tribunal on the review must file a notice of such desire, and any person objecting to the application must file a separate notice of objection, at the office of the Registrar, Wellington House, 125-130, Strand, W.C.2, on or before November 18, 1948.

L.N.E.R. Masonic Reunion Dinner.—The twentieth L.N.E.R. Annual Masonic Reunion Dinner was held at the Abercorn Rooms on October 23 and attended by members from all parts of the company's system; the chair was occupied by Mr. A. E. H. Brown, late Assistant Chief Regional Officer, Eastern Region. The toast of "The Railway Executive" was proposed by Mr. K. C. Marrian, District Engineer, London Midland Region, Manchester, a former G.N. man, and responded to by Mr. F. H. Sedgwick, Accountant, Eastern & North Eastern Regions. That of "The Chairman" was unanimously acclaimed on the proposition of Mr. A. Moss, Signal & Telecommunications Engineer, Eastern Region, who referred to the friendship which existed between the staff and Mr. Brown. Mr. H. E. Stratton, Assistant Engineer (Steelwork), Eastern Region, ably fulfilled the duties of the Master of Ceremonies and his appeal on behalf of Masonic Charities realised a substantial sum. The evening was enlivened by music and humour from a talented band of artists. Congratulations for a most successful function are due to a committee of which Mr. H. Collcott was Honorary Secretary & Treasurer.

R.E., Supplementary Reserve, G.W.R. Units War Memorial at Longmoor.—A tablet is being erected in the Garrison Church of St. Martin at the Transportation Centre, Royal Engineers, Longmoor, to perpetuate the memory of the officers, non-commissioned officers, and men of the three units of the R.E. Supplementary Reserve formed from the staff of the former Great Western Railway Company who gave their lives in the 1939-45 war. The unveiling and dedication of the tablet is to take place at a special service to be held on Sunday, December 5, which service will commence at 11.30 a.m. All those who were connected with the units or who have interested themselves in the memorial will be welcome at the church. A special train on the Longmoor Military Railway

will connect with the 9.45 a.m. train from Waterloo at Liss, and a suitable train will be arranged for the return. The three units whose fallen the tablet commemorates are 151 and 152 (G.W.) Railway Construction Companies, R.E. (S.R.), and 154 (G.W.) Railway Operating Company, R.E. (S.R.).

Forthcoming Meetings

November 12 (*Fri.*).—Institution of Railway Signal Engineers, at the London Transport Executive Signal School, Earls Court Station, London, S.W.5, at 6.15 p.m. "Principles of Interlocking," by Mr. W. H. Such.

November 12 (*Fri.*).—Institute of Transport, East Midland Section, at the School of Transport, Derby, at 6.30 p.m. "Training the Transport Man," by Brigadier L. Manton.

November 12 (*Fri.*).—Institute of Transport, North Staffordshire Group, at the North Stafford Hotel, Stoke, at 6.30 p.m. "Road Passenger Transport," by Mr. C. F. Klapper.

November 13 (*Sat.*).—Permanent Way Institution, Manchester & Liverpool Section, at the City Technical College, Byron Street, Liverpool, at 2.30 p.m. Ten-minute lectures by members of the section.

November 15 (*Mon.*).—Institute of Transport, in the Jarvis Hall, Royal Institute of British Architects, 66, Portland Place, London, W.1, at 5.30 p.m. "Progress towards the Integration of Transport," by Sir Cyril Hurcomb, Chairman of the British Transport Commission and a Past President of the Institute.

November 17 (*Weds.*).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1, at 5.30 p.m. "History of Southern Railway Locomotives to 1938," by Mr. C. S. Cocks.

November 17 (*Weds.*).—Institute of Traffic Administration, Birmingham Centre, at 1.45 p.m. Visit to Dunlop Rubber Co. Ltd.

November 17 (*Weds.*).—Railway Students' Association, London School of Economics & Political Science, at 6 p.m. Visit to Post Office (London) Railway at Mount Pleasant.

November 18 (*Thurs.*).—British Railways, Southern Region, Lecture & Debating Society, at the Chapter House, St. Thomas's Street, London Bridge, at 5.45 p.m. "The Work of the British Transport Commission," by Mr. Miles Beevor, Chief Secretary & Legal Adviser, British Transport Commission.

November 18 (*Thurs.*).—British Railways, Western Region, London, Lecture & Debating Society, at the Clerks' Dining Club, Bishop's Bridge Road, Paddington, at 5.45 p.m. "Road Transport, the New Regime," by Mr. Harold Elliott, Chief Officer (Freight) Road Transport Executive.

November 18 (*Thurs.*).—Diesel Engine Users Association, at Caxton Hall, Westminster, S.W.1, at 2.30 p.m. "Gas Turbines—An Introduction for the Prospective User," by Mr. R. J. Welsh.

November 18 (*Thurs.*).—Institute of Welding, North London Branch, at the Polytechnic, Regent Street, at 7.30 p.m. "Welding in Constructional Engineering," by Mr. O. Bondy.

Railway Stock Market

The continued upward movement in British Funds has impressed, and, with yields gradually getting smaller, leading industrial and other securities have been coming in for more attention, Imperial Chemical, Dunlop, Turner & Newall, Distillers, and British Aluminium moving in favour of holders. Although regarded as only a small step in the right direction, Government plans for "streamlining" controls have helped sentiment, the assumption being that, if there is to be any marked increase in production next year, much more freedom will have to be accorded to industry.

Reinvestment of Argentine railway payout money again has been an important factor. Transport 3 per cent. (1978-88) moved up to 100⅝, while the new Electricity stock commanded a premium of 12s. 6d. which is its best level since dealings started. There was again a big business in steel shares, while a considerable volume of switching into shares of companies not threatened by nationalisation was more than offset by buying by big financial institutions, who regard steel shares as having a unique attraction as a long-term option on British Funds. This explains why shares such as Dorman Long (33s. 4½d.), Consett Iron (15s. 3d.), Lancashire Steel (35s.), South Durham Steel (33s. 3d.), Thomas & Baldwins (15s. 3d.), and Hadfields (30s. 10½d.) are at or above their take-over levels.

Some of the Argentine rail money is continuing to be placed in Brazil rail stocks. Leopoldina issues were again favoured on take-over possibilities, the ordinary stock touching 11¼, the preference 40, with the 4 per cent. debentures strong at 75, while the 6½ per cent. debentures reached 95 and Leopoldina Terminal debentures were up to 69. Some profit-taking developed later. Great Western of Brazil shares in active dealings rose to 109s. and San Paulo ordinary stock was firm at 171½. B.A. Central 4½ per cent. debentures were 45s. Mexican Railway 6 per cent. debentures eased to 84½. Manila Railway "A" debentures were 88 and the preference shares 9s. 6d. Beira Railway bearer shares have strengthened to 66s. 3d. Canadian Pacifics, though uncertain owing to the fall in Wall Street which followed the U.S.A. election result, rallied later to 21. Antofagasta ordinary was firm at 10.

There was renewed activity in road transport, with a good deal of investment buying of shares of operating companies, particularly those in the B.E.T. group. It is pointed out that in some cases yields are quite attractive and that there is every prospect of dividends being maintained until such time as there is a final decision regarding taking over. This week the market has revived rumours of pending B.E.T. negotiations although only a week ago the prevailing view was that these might not take place until 1950.

Plans of Thomas Tilling for dealing with the £24,800,000 pay-out for the road transport interests were generally in line with market expectations although the payment is not to be in cash. The compensation is being satisfied by an allotment of 3 per cent. Transport ("Wagon") stock (1968-73) at 101 per cent. Shareholders will receive a capital distribution at the rate of £5 of this stock for every Thomas Tilling £1 unit of ordinary stock held. The company will have the remaining balance of £3,954,455 of Transport stock, and retains important holdings and interests which will yield an income of £240,000 per annum, less management expenses. Tillings will become purely an investment and holding company. Shares of locomotive building and engineering companies have reflected the better trend of markets, Beyer Peacock improving to 25s., with North British Locomotive at 24s. 6d., Vulcan Foundry 27s. 6d., and Charles Roberts £7⅞. T. W. Ward at 64s. 6d. have responded to the strong position disclosed by the consolidated accounts.

Traffic Table of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffics for week: Total this year	Traffics for week: inc. or dec. compared with 1946/47	No. of weeks	Aggregate traffics to date: Total 1947/8	Aggregate traffics to date: Increase or decrease
South & Central America	Antofagasta...	811	31.10.48	£ 63,430	+ £ 13,228	43	£ 2,396,180	+ £ 511,232
	Bolivar	174	July, 1948	$28,960	− $69,357	30	$471,287	− $301,893
	Brazil	—	—	—	—	—	—	—
	Cent. Uruguay	970	30.10.48	34,706	+ 5,076	17	562,393	− 3,973
	Costa Rica	281	Sept., 1948	34,083	+ 4,533	13	111,619	+ 18,546
	Dorada	70	Sept., 1948	30,656	+ 456	39	240,485	− 33,615
	G.W. of Brazil	1,040	30.10.48	38,400	− 2,600	43	1,400,100	− 23,700
	Inter. Ctl. Amer.	794	Sept., 1948	$945,329	+ $46,210	39	$10,114,948	+ $203,761
	La Guaira	22¾	Oct., 1948	$109,661	+ $21,862	43	$1,048,517	− $27,377
	Leopoldina	1,920	30.10.48	57,571	− 9,328	43	2,426,795	− 483,574
	Midland Uruguay	319	Sept., 1948	19,608	+ 3,123	12	67,355	+ 16,721
	Nitrate	382	31.10.48	13,402	+ 6,874	43	258,996	+ 73,826
	N.W. of Uruguay	113	Sept., 1948	5,686	− 1,213	12	16,335	+ 1,989
	Paraguay Cent.	274	29.10.48	$88,598	+ $19,006	17	£1,724,325	+ £708,302
	Peru Corp.	1,059	Oct., 1948	205,602	+ 27,225	17	753,073	+ 56,933
	Salvador	100	Aug, 1948	c80,000	− c2,000	9	c165,000	+ c8,000
	San Paulo	153½	—	—	—	—	—	—
	Taltal	156	Oct., 1948	7,970	+ 115	17	31,730	+ 7,460
	United of Havana	1,301	30.10.48	41,800	− 20,793	17	748,716	− 326,545
	Uruguay Northern	73	Sept., 1948	1,072	+ 52	12	3,308	+ 111
Canada	Canadian National	23,473	Aug., 1948	10,110,000	+ 855,250	35	77,676,250	+ 5,854,000
	Canadian Pacific	17,037	Sept., 1948	8,499,750	+ 1,556,500	39	63,896,750	+ 5,664,750
Various	Barsi Light†	202	Sept., 1948	18,600	− 315	26	155,092	− 4,470
	Beira	204	Aug., 1948	115,987	+ 2,924	47	1,287,270	+ 246,785
	Egyptian Delta	607	30.10.48	19,211	+ 1,455	26	328,731	+ 31,899
	Gold Coast	536	Sept., 1948	165,446	+ 21,792	26	1,185,462	+ 258,231
	Manila	—	—	—	—	—	—	—
	Mid. of W. Australia	277	Aug., 1948	28,670	+ 6,667	8	52,657	+ 9,172
	Nigeria	1,900	Aug., 1948	403,545	+ 97,720	21	2,205,705	+ 483,370
	Rhodesia	2,445	Sept., 1947	643,980	+ 102,833	52	6,787,603	+ 612,938
	South Africa	13,347	9.10.48	1,347,866	+ 94,133	27	36,462,434	+ 2,123,062
	Victoria	4,774	June, 1948	1,358,791	+ 248,144	52	—	—

† Receipts are calculated @ 1s. 6d. to the rupee